Telecommunications Consultants India Ltd.

(A Govt. of India Enterprise)

Material Management Division

TCIL Bhawan, GK-I, New Delhi – 110 048

IS/ISO 9001

No. TCIL/15/1482/I/12-MM/44E/CO-4 **April 10, 2013**

CORRIGENDUM No-4 to e-Tender

Tender No. **: TCIL/15/1482/I/12-MM/44E dated 13-02-2013.**

Scope of Work **: Supply, Installation & Commissioning of Medical Equipments & associated pipelining work at nine Trauma centres in different locations of Bihar State**

The following new Clause and Sections are added & which overrides the previous Clause of the tender & amendments if already exists:

Section 1: Notice Inviting Tender

The last date of Downloading & online submission of Bids is hereby extended upto 23-04-2013 and revised Important dates are as under:

Last date & time of procurement of tender documents	: 15-04-2013, 17: 00 hrs
Last date & time for seeking clarification, if any	: 15-04-2013, 18: 00 hrs.
Last date & time for Online submission of Bids	: 23-04-2013, 13: 00 hrs.
Online Opening of Technical Part (Part-I)	: 23-04-2013, 15: 00 hrs.
Online Opening of Financial Part (Part-II)	: To be notified later

Bidders are advised to visit the TCIL website (http://www.tcil-india.com/new/tenders1.php), TCIL's e-tendering (ETS) portal (https://www.tcil-indiaelectronictender.com) & CPP portal (http://eprocure.gov.in/cppp/tendersfullview/ 224683) regularly for updates/amendments, if any.

Sl No	Existing Clause & its contents	Proposed contents of the clause
	Section-1. Notice Inviting Tender	
1	**Eligibility Criteria** :4a) Two supplies of similar Medical equipments and associated pipelining work costing not less than Rs. 8.15 crore (for Part-I) & Rs. 1 crore (for Part-II) each. or b) One supply of similar Medical equipments and associated pipelining work costing not less than Rs. 16.25 crore (for Part-I) & Rs. 2.10 crore (for Part-II).	**Eligibility Criteria** :4a) Two supplies of similar Medical equipments and/or associated pipelining work costing not less than Rs. 8.15 crore (for Part-I) & Rs. 1 crore (for Part-II) each. or b) One supply of similar Medical equipments and/or associated pipelining work costing not less than Rs. 16.25 crore (for Part-I) & Rs. 2.10 crore (for Part-II).

2	The bidders and the OEM(s) of the offered products should not have been barred/ blacklisted by any central government department/ organization or central/state PSU.	The bidders and the OEM(s) of the offered products should not have been barred/ blacklisted by any central government department/organization or central/state PSU/Autonomous bodies & no CBI/CCI/anti corruption enquiries are going on against lead bidder & consortium/JV partners. The bidder shall have to submit mandatorily an Affidavit on Non-Judicial Stamp Paper of Rs.100 in this connection otherwise the bid shall be rejected.
3	**New clause added in Eligibility Criteria:-** Bidder is required to submit Solvency Certificate from any Nationalized Bank for solvency amount of not less than Rs 10.20 crore (part-I) & Rs 1.30 crore (part-II).	
	Section-4. Special Conditions	
4	11. **Delivery Schedule** The Medical equipments and associated pipelining work shall be delivered at respective sites within 45 days from the issuance of firm purchase order.	11. **Delivery Schedule** The Medical equipments and associated pipelining works shall be delivered at respective sites within 4 months from the issuance of firm purchase order.
	Section-5. Price Bid Schedule	
5	**Part-I: Medical Equipments**:- Rates to be quoted for individual items from Sl No 1 to 67 & evaluation to be done on total price.	**Part-I: Medical Equipments**:- Rates to be quoted for individual items from Sl No 1 to 67 (except Sl no. 44,61,62,63,64,65,66 & 67 which are placed as optional items, but it is mandatory to quote the rates) & evaluation to be done on total price excluding the cost of optional items as mentioned above.

PRICE BID SCHEDULE

Bidders should quote prices of equipments in the following performa for supplying at different 9 locations in Bihar State.

PART-I : Medical Equipments

(in Rupees)

S. No.	Item Description	Make & Model	Unit	Quantity	Ex- Factory Price (Basic Unit Price exclusive of all levies & charges)	Excise Duty		VAT/ CST		Transportation Cost	Any other levy/charges/Packing & forwarding charges	Unit Price inclusive of all levies & charges [5+7+9+10+11]	Excise/Custom Tariff Head
						%	Amount	%	Amount				
1	2	3		4	5	6	7	8	9	10	1	12	13
1	Ventilator		Nos	39									
2	ICU Beds with side rack cum over Bed Table		Nos	76									
3	Recovery Trolley Stretcher		Nos	13									

4	Crash Cart & Instrument Trolley		Nos	17									
5	Blood Gas Analyser(L-II)		Nos	4									
6	Blood Gas Analyser(L-III)		Nos	5									
7	Bio Chemistry Analyser		Nos	4									
8	OT Table		Nos	9									
9	OT Light		Nos	9									
10	Suction Machine		Nos	18									
11	Anesthesia Work Station		Nos	9									
12	Emergency Kit		Nos	9									
13	Surgical Instrument Kit		Nos	9									
14	Cautery Machine		Nos	9									
15	Transport Ventilator		Nos	9									
16	Stools with S S Top		Nos	108									
17	Intra Venous Infusion stand		Nos	18									
18	Dressing Drums S S 15 Inc High x 15 Inc Diameter		Nos	45									
19	S S Instrument Tray with Cover 15 INX 10INX IN		Nos	45									
20	Waist Linen Plastic Drums		Nos	45									
21	Waste Disposal Plastic Drums		Nos	45									
22	S S Kidney Tray 500 ml capacity		Nos	180									
23	S S Bowl 250 ML		Nos	180									
24	S S Basin 2000 ML		Nos	180									
25	Bed Pan Plastic		Nos	170									
26	Urinal Maleplastic		Nos	90									
27	S S Dressing Tray 9 IN x 6 IN x 3 IN with cover		Nos	90									
28	E C G Machine		Nos	9									
29	Telescopic Intra Venous Infusion stand		Nos	81									

30	Cubical Curtain		Nos	81									
31	S S Bucket for 10 litre		Nos	36									
32	Plastic Bucket 15 litre		Nos	90									
33	Plastic Mugs 500 ML		Nos	135									
34	Blankets		Nos	90									
35	Bed Sheets		Nos	180									
36	Pillow		Nos	90									
37	Pillow covers		Nos	180									
38	Draw Sheets		Nos	450									
39	Foot Operated covered Plastic Dustbins		Nos	90									
40	B P instrument Mercury		Nos	54									
41	B P instrument Digital		Nos	54									
42	White Background X Ray Viewer 2 X-Ray Pane		Nos	18									
43	Scrub Station for OT		Nos	9									
44	Blood Bank Refrigerator		Nos	9	Moved to optional items, not to be quoted here								
45	Operating Headlight		Nos	4									
46	Operating Microscope		Nos	4									
47	Monitor 3 parameter		Nos	39									
48	Monitor 7 parameter		Nos	9									
49	Central Monitoring station		Nos	4									
50	Syringe Infusion Pump		Nos	92									
51	30 KW HF X-Ray with Automatic film Processor		Nos	9									
52	100 mA X-Ray M/c		Nos	9									
53	Color Doppler		Nos	9									
54	Defibrillator		Nos	13									
55	BIPAP		Nos	4									
56	C-ARM image Intensifier		Nos	9									

57	Rapid Sterilizer		Nos	9									
58	Laproscope with Camera		Nos	4									
59	Stretchers		Nos	45									
60	Hematology Analyzer		Nos	9									
61	Hemoglobin Analyzer		Nos	9	Moved to optional items, not to be quoted here								
62	Pneumatic Torniquet		Nos	9	Moved to optional items, not to be quoted here								
63	Table Top Centrifuge		Nos	9	Moved to optional items, not to be quoted here								
64	RH View Box		Nos	9	Moved to optional items, not to be quoted here								
65	Blood Bag Transport Box		Nos	9	Moved to optional items, not to be quoted here								
66	Needle Burner		Nos	27	Moved to optional items, not to be quoted here								
67	Splint & Traction		Nos	45	Moved to optional items, not to be quoted here								
	TOTAL												

Optional Items (Mandatory to quote)

S. No.	Item Description	Make & Model	Unit	Quantity	Ex- Factory Price (Basic Unit Price exclusive of all levies & charges)	**Excise Duty**		**VAT/ CST**		Transportation Cost	Any other levy/charges/Packing & forwarding charges	Unit Price inclusive of all levies & charges [5+7+9+10+11]	Excise/Custom Tariff Head
						%	Amount	%	Amount				
1	2	3		4	5	6	7	8	9	10	1	12	13
44	Blood Bank		Nos	9									
61	Hemoglobin		Nos	9									
62	Pneumatic		Nos	9									
63	Table Top Centrifuge		Nos	9									
64	RH View Box		Nos	9									
65	Blood Bag Transport		Nos	9									
66	Needle Burner		Nos	27									
67	Splint & Traction		Nos	45									

PART-II : Associated Pipelining work

S. No.	Item Description	Make & Model	Unit	Quantity	Ex- Factory Price (Basic Unit Price exclusive of all levies & charges)	Excise Duty		VAT/ CST		Transportation Cost	Any other levy/charges/Packing & forwarding charges	Unit Price inclusive of all levies & charges [5+7+9+10+11]	Excise/Custom Tariff Head
						%	Amount	%	Amount				
1	2	3		4	5	6	7	8	9	10	1	12	13
1	Medical Gases Pipeline system [one pipeline system includes the following items- Fully Automatic gas control panel for oxygen-1 set, 4+4 oxygen manifold, with pigtail pipes & NRV's without cylinders-1 set, single cylinder emergency oxygen manifold-1set, terminal units(gas outlets) with probes/adaptors as per NFPA, CSA UL listed- for oxygen system-11 no, for vacuum system-11 no, for N2O system-1no, oxygen flow meter with humidifier-9no, ward vacuum with regulator-9no, medical gas zone valve Box-2 services-1no, medical gas area alarm-2 services – 1no, horizontal bedhead panel (Al Extruded) 5 feet long Provision for gas outlet, electrical switch & socket, nurse call etc-9no, Nitrous oxide cylinder-1no, vacuum system with 1xIR 235 pumps-1 set, Copper piping-1 set & ceiling suspended pendant-1no]	Nos	9										
2	Laminar Air Flow System for Operating Room	Nos	4										
	TOTAL												

Note: 1. Please indicate the rate of applicable CST/VAT if TCIL issues Concessional Sales Tax Form.

2. Please indicate the list of standard accessories and Free of Cost Spares included in the quoted price.

3. Bidders to provide details of taxes in the bid.

Optional Items (Mandatory to quote)

- CMC will not be a part of Evaluation

Description	All inclusive charges per annum
Comprehensive CMC Charges for Post Warranty Period of 3 yr	
Non-Comprehensive CMC Charges for Post Warranty Period of 3 yr	

Note: 1. Please furnish the Scope of Work of Comprehensive AMC Charges and Non- comprehensive Charges.

2. Please furnish list of recommended spares along with reference price in a separate sheet.

6. SECTION – 6: TECHNICAL SPECIFICATIONS

Existing Technical specs is superseded by Revised specs as below:

Annexure for Summary sheet of equipments is being added in this section. Bidders shall have to fill up this sheet with the detailed information of all the items in the BOQ. It is mandatory for the technical evaluation.

1. INTRODUCTION

The Bihar State Health Society (BSHS), Govt of Bihar, intends to establish 9 Trauma Centres for Bihar State Health Society in Different District in Bihar. BSHS has entrusted the work to TCIL Ltd, as Project management consultant. The work broadly involves construction of Trauma centres building and other facilities like medical equipments etc.

9 Trauma Centre's are as under-

LEVEL II

1. Distt Hospital (Level – II), Purnia
2. Darbhanga Medical College(Level – II), Darbhanga
3. SK Medical College (Level – II), Muzaffarpur
4. AN Magadh Medical College Hospital (Level – II), Gaya

LEVEL III

5. Trauma Centre (Level – III) at Civil Hospital, Kishanganj
6. Civil Hospital (Level – III), Gopalganj
7. Civil Hospital (Level – III), Jhanjarpur
8. SH – Sasaram, Distt (Level – III), Rohtas
9. Civil Hospital (Level – II), Madhepura

This tender covers supply, installation & commissioning of Medical Equipments & associated pipelining work.

2. General

2.1 The work in general shall be carried out as per the latest approved specifications with upto date correction slips, unless otherwise specified in the nomenclature of the individual item or as per specifications/makes provided with this tender. In case any item is not covered in any of these documents, the same shall be carried out as per the approval of Engineer in Charge of TCIL.

2.2 Where any portion of special conditions of contract is repugnant to or at variance with any provision of the with Instructions to Tenderer and General Conditions of contract and/or the other documents forming part of the contract then unless a different intention appears the provision of the Special Conditions of Contract shall be deemed to override the provisions of the general conditions of contract and / or the other documents forming part of the contract only to the extent such repugnant/variations in the special conditions of contract as are not possible of being reconciled with the provision with Instructions to Tenderer or General Conditions of contract and/or the other documents forming part of the contract.

3 NATURE OF CONTRACT

The rates quoted by the Contractor shall be deemed to cover for all the minor details / requirement of construction, installation & commissioning which may not have been specifically s given in particular specifications, BOQ, but are required as per established engineering practice.

4 ACCESS TO SITE

The proposed sites are located in different district/location in Bihar. All the sites are well connected to the road/rail network. The contractor shall make sure that while carrying out his responsibilities in connection with this project he will not disrupt traffic movement along public road or any other approach to the site.

5 DEFINITIONS

Definitions as per General Conditions of Contract (GCC) shall be amended or the following definitions appended as under

5.1 The word “Site” in various clauses of General Conditions of Contract (GCC) and other documents of this Tender shall mean either part or all of “Trauma Centers for Bihar State Health Society (BSHS) at Bihar”.

5.2 Wherever in General Conditions of Contract, approval of TCIL / Executing Agency is mentioned, it shall also include the approval from the Owner / Owner’s representative also.

6. SCOPE OF WORK

Under the scope of this tenders following works is covered in two parts:-

Part-I : Supply, Installation & Commissioning of Medical equipments at nine Trauma centers in different locations of Bihar State, including transportation, loading, unloading at site & onsite training to TCIL/Client personnel.

Part-II: Associated pipelining work at nine Trauma centers in different locations of Bihar State, including transportation, loading, unloading at site & onsite training to TCIL/Client personnel.

6.1 The scope of work comprises execution of various items as per BOQ along with General Conditions of Contract (GCC), Technical specifications, and Drawings etc.

6.2 The contractor shall draw up an implementation schedule in consultation with Engineer-in-Charge of TCIL and BSHS authorities.

6.3 The contractor shall seek and obtain necessary prior permission from BSHS /TCIL authorities before commencement of work in any area in accordance with the implementation schedule. Agreement to an implementation schedule does not provide the contractor permission to commence work in any area without seeking immediately prior necessary permission to work in that area.

6.4 The contractor shall notify the Engineer-in-Charge of TCIL regarding disruption of work if and when so happens. Any claim for delay in works on account of such disruptions or otherwise will not be admissible.

6.5 The contractor shall coordinate with all other sub-contractors or vendors selected by the client for other works in relation to this job and extend all support to the other vendors as far as practicable.

6.6 The contractor shall make his own arrangement for storage of materials outside the site of work. However, if any space is available within the site of work the contractor shall seek and obtain necessary permission from the BSHS authorities regarding the same. Nevertheless, security of the material shall be the contractor's responsibility.

6.7 Manufacturer's drawings, catalogues, operational manual, pamphlets, equipment characteristics data, performance charts and other documents submitted for approval shall be in four sets. Each item in each set shall be properly labeled, indicating the specific services for which material or equipment is to be used, giving reference to the governing section and clause number and clearly identifying in ink the items and the operating characteristics. Data of general nature shall not be accepted.

6.8 The contractor shall maintain a site order book at the site office. All instructions received from the Engineer-in-Charge of TCIL relating to the work shall be retained in the file.

6.9 The contractor shall establish an effective quality control system at the site and implement the same to enforce quality control on all items of the work and the project at all stages.

6.10 The contractor shall take all precautions and preventive measures against fire hazards at the site and shall assume full responsibility for the same.

6.11 All cutting and drilling of walls or other elements of the building for the proper entry/installation of inserts, boxes, equipment, etc. shall be carried out using electrically operated tools only. Manual drilling, cutting, chiseling, etc. shall not be permitted.

6.12 The contractor shall provide warning / caution notice boards with light arrangements around the area of working place on all sides as applicable where the work is in progress. Any cut-out on floor shall be duly cordoned off with ribbonned barricades for safety of workers as well as for passersby. Safety to contractor's personnel as well as all visitors in and around the area of work shall be the contractor's responsibility.

6.13 The contractor shall at all the times during the progress of work take all requisite precautions and use his best endeavors for preventing any riotous or unlawful behavior by or among the workers and other employees at the work and shall preserve peace and protection of the inhabitants and the security of property in the neighborhood of the work.

In case the above are not provided at site within 10 days of placement of LOI, TCIL shall procure the same at the risk and cost of the contractor and the expenditure so incurred shall be recovered from the contractors.

PART- I : SPECIFICATIONS OF MEDICAL EQUIPMENTS

1. Ventilator

- The requirement is of a modern microprocessor controlled intensive care ventilator.
- Modes:
  It will have at least the following modes -
  IPPV/CMV, SIMV, CPAP/PEEP, BIPAP / Non Invasive, PCV, PRVC, APRV, pressure support ventilation, non-invasive ventilation
- Parameter settings:
  Tidal volume – 50 – 2000 ml, frequency – 5 – 60 per minute, flow – up to 180 lpm, peep/pressure support – 0 – 30 mbar, i/e – 3:1 to 1:3
  Trigger sensitivity – 1 – 10 Lmp, inspired oxygen – 21% - 100%
- Alarms:

- Audio-visual alarms for limit violations
- User defined; independent for all parameters
- Context defined; as per settings
- Preferably the alarms should be provided e.g. Life-threatening, serious, and advice only.

- Special functional modes:
- Inspiration hold
- Bronchial suction – automatic pre-oxygenation & detection of disconnection and reconnection
- Standby – in user defined parameter settings

- Monitoring & display of monitored functions:
- All measured & calculated values
- Air way pressure – peek, mean, peep, plateau; tidal volume (expired); minute volume – total & spontaneous;
- I:e ratio; rate – total & spontaneous;
- Inspired oxygen & Temperature
- Curves – pressure vs. Time; flow vs. Time and loops – pv; fv
- Trends for 72 Hrs.
- On a large colour touch screen of size not less than 12" diagonal.

- Oxygen enrichment:
  Should be possible to blend oxygen and air from wall outlet in exactly definable percentage.
- Humidifier
  It should have digital temperature monitoring and inbuilt heated wire facility.
- Nebulizer:
  Nebulizer 30/45 minutes working facility should be provided with ventilator.

- Power requirements:
- It will run on the commonly available 220/240 v ac supply.
- High Pressure driving gas should be supplied with the Ventilator.
- There will be a battery backup of at least half an hour or more (ventilator will function with out any change in set parameters for this duration)

- Fail safe:
- In case of oxygen failure it will continue to ventilate the patient with air.
- In case of external power failure it will continue to ventilate the patient on internal backup battery.
- Item will be FDA/CE approved
- All the components of the system will be from the same manufacturer. The machines will be supplied complete with all the required power cords, patient circuits for all uses with appropriate masks and connectors, user manual etc. in ready to use condition.

2 ICU Beds with Over Bed Table & Side Rack / Bed Side Cabinet

It should have following standard features.

1 Electrically operated ICU bed to include:

1.1 Sleep Surface - four-part, area measuring width 35- 39" x length 78" constructed of removable pressure reducing butterfly spring and strut suspension system or equivalent system or light weight non-corrosive HPL surface, stainless steel / Chrome components / Powder Coated.

1.2 Weight Capacity - minimum safe working load 220 Kgs.

1.3 Casters - four (4) 5" or more. Easy roll ball bearing precision swivel casters with polyurethane wheels

1.4 Brakes steering – engaged by color coded foot levers on both sides of the bed.

1.5 Four / Two-Part Assist Rails - integrated into the bed side. Lockable and tuck away side rails.

1.6 Bed Operation Controls - pendant with lockout key that positions on assist rails, bedsides, or flexible control holder. Nurse control console at foot end of the bed, provides:
- All bed functions, plus Trendelenberg, Cardiac Chair position, individual function lock-out and battery indicator.

1.7 Emergency operation - such that all standard electrically operated functions are powered by a built in back-up battery at least 1 hour in case of main power outage.

1.8 Mattress Compensation - moves head section toward head of bed while being raised to reduce mid-section compression and body movement toward footboard. Match existing decor.
1.9 Positioning – Adjustable height, head and leg section adjustment, trendelenberg /reverse trendelenberg, Cardiac Chair Position, CPR / shock.
2.0 CPR Quick Release – single lever operation on both sides of the bed quickly but smoothly lowers the head section of the bed.
2.1 Removable head and footboard – lift off for quick access to patient.
2.2 Accessory Mounting – IV and accessory mounting points on all four corners of bed, track mounting system in bed sides, mounting points along top middle of bed sides.
2.3 CE/ FDA - will meet requirements.
2.4 Bed extension – integrated sliding bed extension and mattress retainer.
2.5 Should be supplied with suitable mattress and pillow.

- **Over Bed Table:**

- With Table Top.
- Dimensions: ≥ 40 cm x 80 cm
- Height Adjustment: Lowest (70 – 80 cm) & Highest (100 – 110 cm).
- It should have minimum 4 castors.
- **Side Rack / Bed Side Cabinet:**

- It should have one top drawer
- It should have one open compartment
- It should have minimum 4 castors.
- It should have a practical patient-friendly towel holder, accessible from the bed.
- Bedpans should easily be stored in mountings underneath the bedside cabinet.
- It should have following technical specification
    - Width : ≥ 40 cm
    - Depth : ≥ 45 cm
    - Height : ≥ 75 cm

3. **Recovery Trolley Stretcher**

The adjustable height and the several available accessories make quicker and easier to move the patient from every diagnostic equipment and to meet any first aid intervention. Important features of quality and efficiency are the lightness and the balancing in the movements. Moreover cleaning and sanitization operations can be rapidly and easily performed.
Safety for patients and operators is ensured by the side rails, with complete disappearence or dismountable, safety belts as standard equipment. The wheels can be locked at the same time for a better stability. The lying surface is divided into three or more sections and made of radiotranslucent laminate, with external frame made of thick tubular steel, varnished with epoxy powders. Epoxy powders are particularly suitable to this product for their resistance to mechanical stress, corrosion and chemical agents used in hospital for sanitization and maintenance operations.
The laying surface is provided with ergonomic push handles and arrangements for accessories. The external frame is equipped with a bumper made of no trace soft plastic / equivalent material. The stretcher is equipped with supports for drainage bag sand. The stretcher is also predisposed for oxygen bottle holder (capacity: 3/7 liter). The backrest and the pelvis section are moved by bilateral levers with pneumatic spring / Piston / Mechanical, while the leg rest section can be adjusted with a rack device / piston. The height is regulated by a pedal lever on the foot side through oil pressure pump / Piston and steel compasses. The basement is covered by a carter made of plastic material for easy cleaning with two basins for patient objects, documents or case history. The Trendelenburg and reverse Trendelenburg movements are made by a lever on the foot side / middle and balanced through a pneumatic spring / piston. The stretcher is equipped also with no trace wheels on balls bearing, Ø 200 mm with big dimensions to allow easier and more comfortable movements. The brake pedal has minimum two positions: totally free and totally locked.

Weight with minimum safe working load 225 Kgs
Height adjustment from floor to top of surface 25''-37''
Overall length 80''-85''.
Overall weidth 32''-36''.
Maximum head elevation 90^{o}
Trenderburg and reverse trenderburg min.18^{o}
Should have integrated min. 2 stage IV pole.
Should be supplied with suitable mattress (min. 3'') and pillow.
Should have 6'' or more caster
Brakes/straight steering – engaged by color coded foot levers on both sides of the bed.
CE/FDA – will meet requirement

4. Crash Cart & Instrument Trolley

Crash Cart:

- Overall size approximately 940mm x 500mm x 1540mm
- Mild steel tubular framework.
- Six coloured removable bins and two polystyrene lockable storage units with three drawers each.
- Four swiveling castors of 125mm dia or more, two with brakes corner rubber buffers.
- Oxygen cylinder holder.
- Complete stainless steel.
- Electric examination lamp.
- Cardiac massage board.
- Stainless steel i.v. Rod.
- Wooden laminated shelves.

Instrument Trolley

- Overall size approximately 1000mm(l) x 510mm (w) x 900 mm (h)
- Complete stainless steel
- Stainless steel shelves
- Top shelve with three/ four sides guard rail
- Stainless steel /mild steel with epoxy powder
- Coated tubular frame work
- Mounted on approximately 750mm swiveling castors

5. **Blood Gas Analyser (for Level-II station)**

- Fully automatic, fast and economical blood gas & electrolyte analyzer
- It should measure the following parameters - ph, po2, pco2, na+, k+, ca++, cl-, glucose, thb, so2%, o2hb, cohb & methb, from whole blood with main calculated parameters like hct, hco3, tco2, o2 sat, be ecf, be blood, a–ado2, p50, anion gap, cto2, cca++(7.40), po2(a-a), ri and temperature corrected values.
- It should calculate the following parameters '- actual bicarbonate (hco3-a), standard bicarbonate (hco3-s), base excess (be), standard base excess (sbe), total co2 (tco2), buffer base, o2 saturation, o2 content, alveolar to arterial oxygen-tension grade (aado2) partial o2-press. At 50% o2-saT (p50),acid base status.
- It should need input of the following parameters - patient's temperature, patient's id, hb, fraction of inspired oxygen (fio2) and respiratory quotient (rq) for calculation of aado2.
- It should have liquid calibration with gas-equilibrated calibration solution and there should be no need for bulky gas cylinders
- It should have economy mode with extended calibration intervals additionally to reduce the consumption of reagents while the system remains in "stand by".
- It should have pre-selection programs for start-up.
- It should have relevant patient diagnosis recorded on printer.
- All parameters should be available in single aspiration of sample.
- Instrument should have window based operation with large colored touch screen.
- Instrument should have built-in bar code reader.
- Instrument should store patient results, automatic on board calibration reports.
- Instrument should have different test cartridges from 50 tests to 300 tests.

- Instrument should have built in battery back-up & the sample measurement should be possible in battery mode.
- System should have air in detection system bubble detection.
- Consumables should have minimum onboard life of 30 days
- Measuring Time Upto 100 Seconds
- SAMPLE VALUE SHOULD NOT BE MORE THAN 200µL WITH CO-OXIMETRY
- Instrument should have simple wet-section, with minimum number of tubings and valves to avoid break downs.
- Analyzer should be able to measure capillary samples.
- Instrument should have HIS/LIS connectivity.
- Instrument should have maximum uptime.
- Should be CE/FDA approved.

6. **Blood Gas Analyser (for Level-III station)**

- System can be used easily
- Room temperature storage should be there
- Integrated calibration and quality checks should be there
- Results time should be in just 30 seconds
- Barcoded option should be there for error-free panel identification ,lot number, and inventory records
- Sample volume required 100microliter
- Measured analytes should be pH, pCO2, pO2, Na+, K+, Ca++, Glu, Lac, Hct
- Wireless Communication with Mobile Computers via Bluetooth Version 2.0 + EDR Class 2 should be there
- Operates from external power or Ultra life Lithium Ion rechargeable battery should be used
- Recharges mobile computers when connected to external power

Current (Battery):2A
Input/output voltage (car power) DC12V/ DC9.0V
Current (vehicle power) 4A
Voltage (lithium battery) DC7.4V
Capacity (lithium battery) 16000mAH
Power rating DC9.0V/ 18W,DC7.4V/13W
Weight (with battery) : 5.3kg approx.
Battery working time: Per battery working 6~8 hours under 35'C, battery is interchangeable and rechargeable.

- Should be CE/FDA approved.

7. **Bio Chemistry Analyser**

- It should have a throughput of minimum 200 tests/hr of photometric reagents and min. 330 Test/Hour Throughput with ISE.
- It should have a holographic grating with a Photo diode array which minimizes the step through time loss due to filter selection in Grating/Non-grating machines.
- It should have at least 50 online tests and 200 analyzing parameters, and 50 or more calculation tests programmable.
- All the positions in the reagent tray should be refrigerated.
- It should have min. 40 sample positions, including Calibrators, controls, and dedicated minimum 10 STAT positions.
- It should have Minimum 80 disposable cuvettes having less than 250 µL reading volume.
- It should have 8-step washing system using acid, alkaline, warm water to avoid carry over.

- It should have two different probes for different reagents thereby minimizing carryover and contamination.
- It should have the capability to run 2 or more reagent chemistries.
- The software should be advanced preferably based on Windows XP to enable easy user machine interaction.
- It should have primary tube bar coded sampling.
- It should be CE/FDA approved system.
- It should have programmable QC with LJ charts, Westgard Rules.
- It should have permanent Glass cuvettes, very high quality Cuvettes, thereby minimizing the maintenance protocol.

8. **O T Table**

Table is 5 sections or more with split leg section, cut out and is C arm compatible.

- Table is Electro Hydraulic / Electro Mechanical having remote and an Electronic override
- Remote controls Height adjustment, side tilt and Trend/rev Trend positions, Flex Reflex and sliding both ways head side and leg side.
- Back / Head and Leg sections are manually adjustable.
- Table should have min. 4 castors that are electrically conductive
- Base frame of table is made of high grade rust resistant Stainless Steel.
- Table Length is approx. 1750-2050 mm with Head and Leg plates.
- It should have head section ,back and chest section
- It should have maintenance-free for long-lasting performance and load-bearing corrosion-free easily replaceable modules.
- It should have frame with following features.
  - Solid, made of stainless steel
  - Stable attachment of accessories
  - Easy to clean
- It should be supplied with battery Pack
- Should be CE / FDA Approved

Features

- Table width is 500-550mm without side rails.
- It should have telescopic head section
- It should have back section adjustment
- it should have 24v dc battery pack operation
- Height adj is approx. 600 mm to 1050mm
- Trend/ Rev Trend is 25-30 deg.
- Lateral tilt is 15-20 deg.
- Back section adjustment is +80 deg/- 40 deg.($\pm 5^{o}$)
- Leg plate adjustment is + 15 deg/- 95 deg ($\pm 5^{o}$).
- Head plate adjustment is +30 deg/ - 30 deg. ($\pm 5^{o}$)

It should supply with following accessories or equivalent accessories as per quoted model

1. Head plate
2. Arm support – 2 Nos.
3. Leg holder
4. Side arm support / Lateral Arm Support
5. Anesthesiology screen rod
6. Anesthesiology tube holder
7. Side positioning support:
8. Calf support
9. Instrument tray on table
10. Push handles
11. Infusion stand

12. Mounting brackets / Clamps

9. **O.T Light**

Description: Operating Room Surgical Lighting System should provide an ideal combination of brightness, maneuverability, and shadow resolution without sacrificing color accuracy through a consistent, homogeneous LED technology. It should have green light for endoscopic illumination

Such Lighting System should have the following technical specifications:

Number of Lightheads	:	Two per suspension
Color Temperature	:	3600 – 5000 kelvin in 3 or more stages
Color Rendering Index	:	≥ 95
Depth of Field	:	800-1500mm
Illumination Level	:	1,60,000 Lux
Controls	:	Wall Control / Touch - Panel
Rotation	:	360 degrees in all joints and domes
Vertical Adjustment Range	:	approx. + 22in (55.9cm), -25in (63.6cm)(depending on ceiling height)
Sterilizable Handle	:	Yes
Lighthead Diameter	:	approx. 26”-30”
Mounting Type	:	Ceiling
Supply Voltage	:	100-230VAC 50/60Hz
Power	:	≤ 100 Watts per dome
Bulb Type	:	LED
Total Irradiance at 160klux	:	≤ 600W/m2.
Rated Input	:	100-230V~50-60Hz; 6A
Lamp service life	:	≥40000hours
Certification	:	CE / FDA

10. **Suction Machine**

It should be a full automatic surgical suction unit. When the first jar is full, system selects the second jar automatically. After filling the second jar, system stops itself and prevents the leakage of waste liquid.

It should have following technical specification.

- 60 L/min flow rate
- Automatic jar selecting system
- Two collecting jars
- Overfilling system for preventing liquid leakage
- Oil free, maintenance free vacuum pump
- Aluminum main body
- Different jar options
- Dimensions (WxLxH):approximately 430x460x820 mm
- It should be CE / FDA certified or equivalent.

11. **Anaesthesia Work Station**

The Anaesthesia work station system (PENDANT/ BOOM ARM MOUNTABLE MODEL), should be Integrated with ventilator, vaporizer. The work station will be CE / FDA marked as per Medical Device directive .

Anaesthesia Machine with vaporizers:-

1. Rigid construction and design with standard frame.

2. Integrated suction (venture operated), auxiliary Oxygen flow meter for mask O2 delivery without going through the main rotameter , integrated active AGS System & integrated LED Light will be supplied.

3. Gas specific (pin indexed) Yokes-Two, one for oxygen, and one for nitrous oxide to accommodate 5-liter water capacity cylinders.

4. Provision to connect oxygen, air & nitrous oxide directly to system with pipeline supply for each gas.
5. Gas mixer/ Flow meter assembly with 5 tube, with possibility of enabling or disability air or N2O and Activating as per requirement.
6 Automatic Cutoff of Nitrous by Oxygen Pressure failure along with hypoxic guard for linear regulation of
minimum O2 concentration at 25% volume and a base flow of 200ml.
7 Oxygen flush, which is able to deliver at least 30-70 liters per minute of oxygen.
8. Single canister integrated circle absorber with unidirectional and airway pressure relief valves, integrated sensing mechanism. It will have facility for changing the soda-lime intra-operatively with soda-lime capacity of about 900 gms.
9. Fully integrated Circle absorber system for adult as well as pediatric patient category. It will have an autoclavable block.
10. It will have a spirometery sensor position able to Y or at the digital end, for measurement of I/E Tidal vol, Minvolume, loops and scalars etc..
11. Integrated LED light.
12. It will have an integrated color TFT screen of at least 8"size for display of ventilation parameters etc.
13. Vaporizer:-provision to connect two vaporizers at a time with interlocking facility.
One Isoflurane/ Halothane/ Sevoflurane/vaporizer will be supplied with the machine. Vaporizers flow will be temperature, and pressure compensated and maintenance free
14 Active Scavenging System: Will have integrated active scavenging system.

Integrated Anaesthesia Ventilator

1. Microprocessor based, electronically controlled and electrically/ pneumatically driven will not require change of bellows for adult and infants.
2. It will have following features.
   - **i.** Modes-VCV, PCV, PSV, Manual, Spontaneous modes so that reversal complications can be Handled in the Operating Room itself.
   - **ii.** Tidal volume range 20 ml to 1500 ml.
   - **iii.** Facility for Sigh
   - **iv.** Integrated PEEP variable electronically up to a minimum of 20 mbar.
   - **v.** Adjustable breath rate 5-80 bpm.
   - **vi.** Inspiratory pause
   - **vii.** Will automatically display and compensate for compliance of breathing circuit.
3. Alarms will have audiovisual display of alarm messages for:- Airway pressure, minute volume, inspiratory O2 concentration, audio power supply fail alarm, fails to cycle warming, airway pressure alarms for high and low pressures.
4. In built battery backup facility for up to a min. of one hour.
5. Self-diagnostic facility to check the overall system including ventilator for leakage.

12. Emergency Kit

Emergency Kit contains the following items in a compact carry case.

Standard Accessories:

- Three sizes face masks with tubing
- Small oxygen cylinder
- Single stage single gauge regulator
- Cylinder Key
- Provision for using cylinder with Tubing filled with metal end
- Refilling for Refilling the cylinder

Manual Resuscitator:

Manually Operated resuscitator with double inlet valves for air and oxygen attachments

Suction Pump:

Manually operated Suction Pump to aspirate the mucus, blood or other secretion from the entire airways of Adult, Child or Infants. It can also be operated from Gases by simply turning the suction knob. Supplied with suitable suction Catheter.

Intubation Set:

- Laryngoscope with Three blades and Handle
- Endotracheal Tubes with cuff and plain four sizes sterilized
- Endotracheal connection Set of 12
- Magill's introducing forcep
- Mouth bite

13. **Surgical Instruments Kit**

* S.S. mosquito artery forceps curved 5 inches longwith sharp tip
* S.S. mosquito artery forceps straight 5 inches long with sharp tip
* S.S. needle holder fine tip 8 inches long to handle suture of 3-0, 4-0, & 5-0
* S.S. skin hooks sharp tip 8 inches long
* S.S. B.P. handle no. 2
* S.S. B.P. handle no. 3
* S.S. allies's forceps 8 inches long 2: 1 tooth
* S.S. adsan's dissecting non-tooth forceps 5 inches long
* S.S. adsan's dissecting tooth forceps 5 inches long
* S.S. fine langenbach's retractor with 5mm blade
* S.S. fine langenbach's rectrator with 1cm. blade
* S.S. fine tip right angle (mister) forceps 6 inches long with tungstan tip
* S.S. fine metzenbaum curved scissors 6 inches long tungstan carbide tip and golden grip
* S.S. fine mitzenbaum straight scissors 8 inches long tungstan carbide tip and golden grip
* S.S. fine eye retractor c-shaped 6 inches long
* S.S. littlewood's tissue holding forceps 8 inches long
* S.S. lane's tissue holding forceps 8inches long
* S.S. suction tip 12 inches long
* S.S. suction tip 9 inches long fine tip with proximal hole
* S.S. cheatle's forceps 12 inches long with ss holder
* S.S. towel clips for drapping & sponge holder 12 inches long
* S.S. hook retractor 8 inches long
* S.S. langenback's retractor with 2cm. wide blade
* Humpy's knife
* Mesher
* Travers self retaining retractor 2cm jaw
* Travers self retaining retractor 3cm jaw
* customized zeiss eye loupe

14. **Cautery Machine**

1) Main Features:

- The Electrosurgical unit should have HF output of 300W and must be microprocessor controlled to be used for most surgical applications with efficient cutting and effective coagulation.
- Should have three modes of monopolar coagulation namely Soft, Force and Spray.
- Should have four blends of cut with varying degrees of haemostasis and a special mode for under water applications.
- User settable auto stop mode in soft coagulation to switch off power automatically after the coagulation of tissue/blood vessels.
- Should have multiple programmable settings and multiple preset memory for different specialty applications.
- User settable auto start and auto stop facility in bipolar coagulation with auto start delay facility of 0, 1 & 2 sec.
- Should have safety alarm for leakage current patient plate disconnection and continuous activation of the unit.
- The unit should have the facility to continuously monitor the leakage current and stop power delivery with an audible alarm if the leakage current exceed the safety limits.
- Should do auto self test whenever the unit is switched on.

- The unit should have a double pedal explosion protected footswitch and silicon rubber patient plate.
- All power modes of the unit should be digitally displayed and must have soft touch key pad for controlling the power and modes.
- The company should be ISO-9001-2000 certified and the unit must have a CE/FDA mark.
- The weight of the unit should be less than 15 Kg and should have volume display with audio and visual alarm.
- The unit should reduce RF distortion in other O.T equipments due to noiseless performance.

2) Output Characteristics:

- The Monopolar cutting mode should have HF output of 300W at 100-700 ohms with power settings ranging from 1 to 300 Watts in increment of 1 Watt with an unmodulated sinusoidal waveform of the HF voltage.
- The Bipolar cutting mode should have HF output of 120W at 100-500 ohms with power settings ranging from 1 to 120 Watts in increment of 1 Watt and an unmodulated sinusoidal waveform of the HF voltage.
- The Monopolar Soft coagulation mode should have HF output of 120W at 100-200 ohms with power settings ranging from 1 to 120 Watts in increment of 1 Watt and an unmodulated sinusoidal waveform of the HF voltage.
- The Monopolar Force and Spray coagulation mode should have HF output of 120W at 300 ohms with power settings ranging from 1 to 120 Watts in increment of 1 Watt and a pulse modulated waveform of the HF voltage.
- The Bipolar Coagulation mode should have HF output of 120W at 100-200 ohms with power settings ranging from 1 to 120 Watts in increment of 1 Watt and an unmodulated sinusoidal waveform of the HF voltage.

3) Safety Features:

- The Safety class should be Class I and Type CF according to IEC 60601-1.

4) Technical specifications:

- Input voltage: 200V to 230 V AC, 50 Hz.
- Current Fuse: 5A.

5) Standard Accessories:

- Cable for patient plate.
- Silicon Rubber Patient plate assembly
- Double Pedal foot switch.
- Knife electrode blade Ball electrode
- Reusable electrode handle.
- Power cord.

15. **Transport Ventilator**

Function modes::cmv + cmvsig
Auto - controlled /assisted
Amv + pcm + mvm
Cpap
O2: > 40% if air mix = on and > 90% if air mix = off
Frequency: from 5 to 40 bpm
Flow: from 2 to 20 lpm
Peep: from 0 to 20 mbar
I/e ratio: 1/2 (0.5) 1/1(1) in auto mode and trigger = ombar
Pressure limit: from 5 to 60 mbar
Trigger: from 0 to -10 mbar
Inhaler flow: from 0 to 15 lpm
Alarms: pressure max (>55 mbar adults, >30 mbar children)
Pressure min (<10 mbar)

Apnoea (spontaneous breathe stopped)
Oxygen source failure
Battery low
SNC hazardous selection (acoustic only)
Dimensions: 240x128x140 mm approximately
Power supply: 12 v dc/1.2 a as well as vehicle dc power inlet
Autonomy: >6h

- Preferably should have both non invasive as well as invasive capabilities. And have both pressure as well as volume control modes.
- Should have wide range of applications from children above 5 kg to adults.
- Should provide pressure & flow triggering & advance leak compensation for effective ventilatory support.
- Should have a data card not less than 1 GB for storing all necessary ventilation data or USB port for retrieval of data. Data to provide ventilation therapy for effective treatment.
- Alarms – both audio as well as visual - apnea, low/high volume, low/high minute ventilation, low/high respiratory rate, low/high inspiratory pressure (in volume modes).
- Should be able to monitor – exhaled tidal volume, exhales minute ventilation, leak rate, respiratory rate, peak inspiratory flow, peak inspiratory pressure i:e ratio, mean airway pressure.
- Battery backup of min 6 hours
- Should be light weight < 7.5 kg for easy transfers.
- All the components of the system should be from the same manufacturer. The machines should be supplied complete with all the required power cords, patient circuits for all uses with appropriate masks and connectors, user manual etc in ready to use condition.
- Item should be CE approved / FDA approved

16) Stools with S.S Top

- Complete stainless steel
- Ss top
- Height adjustable from 450mm to 680 mm
- Four legged made of 25mm steel tube mounted on rubber shoes
- Stainless steel ring fitted with legs for footrest
- ISI / CE / FDA mark or equivalent.

17) <u>Intra Venous Infusion Stand</u>

- Stainless steel I.V. Stand with four locations.
- Five pronged tubular rectangular stable base with castor
- Variable height adjustable 1600mm to 2400 mm
- ISI / CE/FDA mark or equivalent.

18) **<u>Dressing Drums S.S 15 In. High X 15 In Diameter</u>**

ISI/CE/FDA certified or equivalent. Required one each of following siges.

(i) 275 X 240 MM 275 X 132 MM
(ii) 350 X240 MM 350 X 130 MM
(iii) 380 X 300 MM

19) **<u>S.S Instrument Tray with Cover 15 INX 10 INX IN</u>**

ISI/ CE/FDA CERTIFIED or equivalent. Required One Of Each Size

a. 200X 150 MM
b. 250 X 200 MM
c. 300 X250 MM
d. 350 X 250 MM
e. 450 X 300 MM

20) <u>Waste Linen Plastic Drums</u>

- Size - ~100 litre capacity .
- It should be ISI/ CE/FDA certified or equivalent.
- Should be colour coded as per pollution control guidelines

21) **Waste Disposal Plastic Drums**

- Size - ~100 litre capacity .
- It should be ISI/ CE/FDA certified or equivalent..
- Should be colour coded as per pollution control guidelines

22) **S.S Kidney Tray 500 ml capacity**

ISI/ CE/ FDA certified or equivalent.
One of each of the following sizes

(iv) 150 X 70 MM
(v) 200 X 90 MM
(vi) 250 X 100 MM
(vii) 300 X 130 MM

23) **S.S Bowl 250 ML**

It should be of: - good quality, branded ;
ISI/ CE/ FDA certified or equivalent.
One of each of the following sizes

(i) 125 x 57 (capacity 500 ml) half curl open rim
(ii) 160 x 75 (capacity 1200 ml) half curl open rim
(iii) Small (capacity 50-60ml)

24) **S.S Basin 2000 ML**

- Mild steel tubular frame
- On 3 swivel twin wheel non-rusting castors 50 mm dia
- 2 ss bowls of ~ 2000 ml capacity/ 375 mm dia
- Pre-treated and powder coated
- CE/ ISI/FDA certified or equivalent.

25) Bed Pan Plastic

It should be of: - good quality, branded ;
ISI/ CE/FDA CERTIFIED or equivalent.
One of each of the following sizes
125 x 57 (capacity 500 ml) half curl open rim

(iv) 160 x 75 (capacity 1200 ml) half curl open rim
(v) Small (capacity 50-60ml)

26) **Urinal Maleplastic**

- It Should Be Of: - Good Quality, Branded ;
- ISI/ CE/FDA certified or equivalent.

27) **S.S Dressing Tray 9 IN X 6 IN X 3 IN with Cover**

ISI/ CE/FDA Certified or equivalent. One Of Each Size

f. 200X 150 MM
g. 250 X 200 MM
h. 300 X250 MM
i. 350 X 250 MM
j. 450 X 300 MM

28) **ECG Machine**

- Patient leads: 10 patient cables with RFI filters, Defibrillator protection and patient isolation (Both Sequential & Simultaneous Type)
- Frequency response: 0.05 Hz to 125 Hz ± 3dB
- Leakage current: < 10 micro amps
- Input impedance: ≥ 10 M ohms
- A/D conversion: 12 bit (2.44 μV resolution)
- Sampling rate: 500 samples/sec
- Sensitivity: 5, 10, 20 mm/mV
- Dynamic range: ± 6 mV

- Speed: 25/50 mm/sec
- PC Interface: Serial and/or USB with cables
- Software: OEM S/w with CD
- Operation manual: In printed form (English essential, English and French desirable)
- Power requirement: Single phase, 230V, 50Hz ac (direct or with AC adapter)
- The unit should have LCD display, memory storage capacity, and interpretation capability and should work on Mains as well as rechargeable battery.
- It should be CE/FDA certified

Accessories to be provided:

- Patient Cables – 1 Complete Set
- Kit Bag (1 No.)
- Fuses (2 Nos.)
- Charger Adaptor with Power Cord (1 No.)
- USB Cable (1 No.)
- Ground Cable (1 No.)
- Software CD (1 No.)
- Paper Rolls (12 Nos.)
- Jelly Bottle (1 No.)
- Clamp / Clip Electrodes (Adult) (6 Nos.)
- Clamp / Clip Electrodes (Pediatric) (6 Nos.)
- Bulb Electrodes (Adult) (8 Nos.)
- Bulb Electrodes (Pediatric) (8 Nos.)
- User / Operating Manual (1 No.)

29) TELESCOPIC INTRA VENOUS INFUSION SET

Providing, Fabricating and fixing of Fastrack – I.V. Tree System, comprising of the following components and specifications:

1) Heavy duty Aluminium track approx (20mmX 35mm) with white powder coated finish.
2) Heavy duty self looking wheel trolley.
3) Telescopic carrier hanger with length variation option.
4) Five point hanger systems made of SS with 6mm thickness. Four hanger points with folding provision.
5) Fifth hanger point is fixed right below the carrier for usage convenience.
6) Roof Suspension – Made of aluminium pipe of approx.12 mm & 19mm diameter. The Upper Circular Plate made of aluminium with approx. 50mm diameter thickness. These are with white powder Coating (outer surface) finish & are of variable height fixed with the ceiling with anchors, bolts, screws etc.

30) CUBICAL CURTAIN

Providing, Fabricating and fixing of Hospital Cubical Track System comprising of the following components and specifications

a) CUBICLE TRACK

Made of Metal Aluminium Alloy of Box size 1.7 x 20 x 25mm with 50-60 microns thick powder coating in white colour finish. Tracks are bendable to a radius of 300 mm at 90 degree to cover the whole bed.

b) CURTAIN

Made of hospital grade premium quality Stain Retardant Fabric with High quality Nylon Net of 12" and 18" on top.

c) Supporting System Consists Of The Following Material:

i. Wall Bracket -
Made of CRC steel with white powder coating finish.

ii. Bridge Clamp –
Made of CRC steel with white powder coating finish.

iii. Roof Suspension –
Made of aluminium pipe of 12.5 mm & 19.5mm diameter. The Upper Circular Plate made of aluminium with 50.4mm diameter thickness. These are with white powder Coating (outer surface) finish & are of variable height fixed with the ceiling with anchors, bolts, screws etc.

d) Curtain Removable Point –

Made of SS for simple loading & unloading of curtains.(Also serves as an end hook retainer).

e) Runner –

Comprises of wheel type runners made of Teflon for easy and smooth sliding of the curtain in the curtain track.

Providing, Fabricating and fixing of Hospital Cubical Track System comprising of the following components and specifications:

31) S.S Bucket for OT 10 Litres

- Complete stainless steel
- Capacity 10 litres (approx.)
- Seamless and with steel handle

32) Plastic Bucket 15 litres

- Standard quality. With handle
- Colour of user's choice

33) Plastic Mugs 500 ML

- Standard quality.
- With handle
- Colour of user's choice

34) Blankets

- Hospital Woolen Blanket (Super Fine Quality) Standard Size with Border Sutton & Deptt. Name & Logo Embossed on the Blanket.
- Specifications-(a) pH balance 5-7, acidic (non allergic). (b)Smell less
- (c) Anti-peeling (d) Soft feel (e) Nylon blend. (Available in all colours)

35) Bed Sheets

- It should have over all size 100 x 60 inches,
  100% cotton of high quality;

36) Pillow (Sky Blue)

- It Should Have Over All Size 15 X 25 Polyfiber

37) Pillow Covers (Sky Blue)

- It should have over all size 17 x 27; 100%
- Cotton of high quality;

38) Draw Sheets

- It should have over all size 50 x 60 inches,
- 100% cotton of high quality;

39) Foot Operated Covered Plastic Dustbin

Size - ~20 Litre Capacity.

40) BP Instrument Mercury / Dial Type

standard quality
Interchangable bp cuff of 3 sizes – for paediatric, adult and obese patients
It should be ISI / CE/FDA certified or equivalent.

41) BP Instrument Digital

- It should be CE/FDA or equivalent CERTIFIED
- BP apparatus with a range of upto 300mHg with provision of both adult and pediatric cuff size
- Measuring pressure range: 20 ~ 280mmHg
- Measuring pulse range: 40 ~ 180 per minute
- Measuring accuracy: Pressure +/- 3mmHg, pulse +/-5%
- Dimension: 185mm x 95mm x 46mm
- 1.5V AA Alkaline battery x 4 (Included)
- Interface: USB / Serial
- Sets memory + average
- Automatic inflation and deflation

- 3 min. automatic power-off
- Large LCD Display
- Measures: Systolic/Diastolic/Pulse
- Low battery indicator
- Cuff Size: Adult - 22cm - 33cm
- Batteries: Included

Extra Accessories to be provided:

- Batteries AA Size (08 Nos.)
- Arm Cuff (1 No.)
- Cable for USB (1 No.)
- Paper Roll (5 Nos.)
- Soft Carrying Case (1 No.)
- User Manual / Operating Manual / Product Manual (1 No.)

42)White Background X-Ray Viewer 2 X-Ray Panel

- PURE UNIFORM WHITE BACKLIT DISPLAY
- SLIM
- WALL MONTABLE
- 220V/ 5 A
- ISI/CE/FDA CERTIFIED or equivalent.
- SIZE FOR ONE FULL LENGTH X-RAY/ CT/ MRI FILMS WITH ON/ OFF SWITCH

43. Scrub Station for OT

It should be a 2 bay Compact Surgical Scrub sink will be designed for use in Operation theatre complex providing surgeons with a convenient sink for pre op scrub up. Each fixture will be fabricated from heavy gauge type 304stainless steel & will be seamless welded construction polished to a satin finish. The scrub sink will be provided with a front access panel, which will be easily removed for access to the water control valve, waste connections, stoppers & strainers. Hands free Operation will include infrared sensor with built in range of adjustment.

Thermostatic Mixing Valve control will be located behind the access panel & maintain constant water temperature. User defined settings of 1, 3,5,10 min are available. This timing will be adjustable to meet individual application requirement, provided with infrared sensor thermostatic controlled taps with fail-safe temperature controls. All units will have reduced anti splash fronts. Knee operated switch should be offered.

44. Blood Bank Refrigerator

It should have following specification

- Voltage: 230v/50hz
- Capacity: 250 liters – 200 bags
- Temperature: +2°c to +10°c
- Accuracy ±0.1°c
- Microprocessor control panel
- Monitoring digital display
- Self-diagnosis
- Alarm messages are stored
- Data logger
- 7” or more LCD display
- 6 pull-out sliding stainless steel drawers with 250 colour coded plastic buckets
- Bacteria resistant powder coated exterior
- Fully automatic defrosting cycle.
- Single transparent heated dual-pane insulated glass door removes fogging & condensation
- Internal structure: Anti-corrosion 304 stainless steel with rounded edges for easy cleaning and perfect hygiene. Shelves adjusted in height.
- Insulation:Thickness of 60 mm. Obtained by injection of high density ecological polyurethane foam (without cfc)
- Auto condensate evaporation system
- It should be ISI / CE/FDA certified
- Cooling system: Airtight compressor with thermal protector and finned package air condenser (copper tube and aluminium fins) with propeller blade. Ecological cooling gas.

Control should have following features.

- Whole System protected by password.

- Set Temperature, Display & Read Temperature.
- Temperature Range -99.9°C to +99.9°C.
- Audio visual alarm for power failure, sensor failure, temps. hi-low,
- Auto set Door open alarm.
- Battery backup atleast 2 hour.
- Defrost On, Cooling On, Printer Data On, Date & Time will show on display.
- Hospital name & department detail will show on display.
- Date, Time, Temperature & Power failure indication will show on printout slip.
- Supplier Name, Supplier Ph. No., Hospital Name & Department Name will show on printout slip.
- Different alarm sound for every alarm indication.
- LCD Temperature graph with 24 continuous hours of data.

45. Operating Headlight

- Illumination: 50000 Lux at a working distance of approx. 250 mm.
  Colour Temperature: approx. 6000 Kelvin
  LED Operating Life: 1 W Super-High Output LED rated atleast 50,000 hours operating life
  Spot Adjustment: approx. 30 mm to 80 mm at 420 mm working distance
  Angle of Declination: Individually-adjustable for every examination
  Rheostat: Headband-mounted
- Operating time: 6 hours
- It should be CE/FDA or equivalent certified

46. Operating Microscope

- Eye piece 10X
- Microscope objectives 200, 300, 400mm for different working distances.
- Head-power supply 220 to 240 volts 50Hzs (Input Volt)
- Power Consumption 15v – 150w (or) 24v – 250w (Output Volt)
- Intensity 60,000 to 80,000 LUX
- Arm rotation – 360 degree head inclination – 10 degree to – 100 degree
- Interpupillary distance adjustable individually from 50 to 75 mm.
- Total weight approximate 60 kg.
- Field of illumination 40mm to 7mm for (200mm objective)
- It should be CE/FDA/ equivalent certified

47. Monitor 3 Parameter

Should not be less than 10" touch screen.
It should be CE/FDA or equivalent certified
Should be colourTFT
Should have the good resolution minimum (800 x 600 dots)
Should have the option for real time ECG wave forms and episode.
Should have the standard facility to monitor ECG , NIBP, Spo2 for low perfusion , temp, resp.
Trend parameters: Heart rate (or pulse rate), respiration rate, VPC rate, ST level, Event (arrhythmia), apnea (time), apnea (frequency), SpO2, NIBP (Systolic,Diastolic,Mean), Temp.
Trend time: 1, 2, 4, 8 or 24 h
Data storage time: 1 min for 1, 2, 4, 8 hours, 3 min for 24 hour.
Vital Signs List
Parameters: Heart rate (or pulse rate), VPC rate, ST level, NIBP (systolic, diastolic, mean), SpO2, respiration rate, temperature.
Number of files in list: 120 for periodic list, 120 for NIBP list
List interval: 1, 5, 15, 30 or 60 min for periodic list, at NIBP measurement for NIBP list.
Should have the facility to store alarm up to 200 and displayed on the alarm history.

Should have the battery backup of min. 2 hr,
Should be able to store 16 arrhythmia episodes which can be edited for arrhythmia analysis.
Should have the facility to enlarge the numeric display.
Should have the faculty to freeze the wave forms.
Unit should be supplied with following accessories:

1. 5 lead ECG Cable
2. NIBP CUFF- Adult,Pediatric, Neonatal
3. Temp probe Tape on Skin
4. SpO2 PROBE – One no. for adult use

48. Monitor 7 Parameter

1.Should have the facility of monitoring ECG, RR, SpO2, NIBP, Two Temp, Dual IBP, ETCO2 and Capnography for Adult, Paediatric & Neonatal applications.

2. Should have integrated colour TFT display of at least 12" or more.
3. Should have facility of viewing at least 8 waveforms simultaneously.
4. Should have detection facility for advanced arrhythmias namely Ventricular tachycardia, Ventricular fibrillation, Vent run, R on T PVC's, Ventricular Couplet, Ventricular Bigeminy, Ventricular Trigeminy, Ventricular Rhythm, Multifocal PVC's.
5. Must use branded Nellcor or Masimo pulse oximetry module with facility for display of Plethysmograph, Pulse strength & SpO2 values.
6. Should have facility of Drug dose calculation and Oxy-CRG trend.
7. Should have IBP waveform facility.
8. Should have non – volatile Graphical & Tabular trend facility for at least 96 hrs
9. Should have facility of downloading data on a USB port and SD card.
10. Should have alarm limits with alarm levels and alarm indication (visual as well as audio)
11. 3 lead ECG measurement and simultaneous monitoring of two temperatures.
12. Should have built in Capnography facility to measure End tidal and Fractional Inspired values of CO2 along with calculation of respiration rate.
13. Monitor should have Wi-Fi facility for wireless communication with Central Nurses station meant for connecting / monitoring simultaneously at least 16 monitors
14. Unit should be supplied with following accessories:

1. 5 lead ECG Cable
2. NIBP CUFF- Adult
3. Temp probe Tape on Skin
4. SpO2 PROBE – One no. for adult use
5. Accessory kit for Capnography

15. Monitor should have built in Electro Surgical Unit & Defibrillator protection.
16. Monitor should have an optional facility for 12 lead ECG, Anaesthesia Gas Monitoring (AGM) with auto gas identification along with display of MAC value , Dual IBP & Cardiac Output (CO) with Thermodilution method
17. Must be CE /FDA approved.

49. <u>CENTRAL MONITORING STATION</u>

1. Branded PC, Printer with 17 "TFT screen.
2. Up to 64 Waveforms of 32 Bed Side Monitors.
3. 6.25, 12.5,25,50 mm/Sec Selectable Sweep Speed.
4. 4 Hours of dynamic Trend Display of All Parameters.
5. Remote Monitor Control Bidirectional Communication.
6. 240 Hours Trend for Each Monitor.
7. 720 Items Parameters Alarm review for each Monitor.
8. 720 CO Measurement Review.
9. Display of Parameters Like, ECG,NIBP,SpO2,Resp, Temp., IBP, Respiration, CO, Et Co2,Etc.
10. Bed to bed View Facility.
11. Should have wireless CNS connectivity

It should be CE/FDA certified

50. <u>SYRINGE INFUSION PUMP</u>

- Syringe Pump front loading should accept 10, 20, 30, 50 ml syringes of known brands as well as CUSTOM programmable syringe.
- Flow rate range should be 0.1-990.0ml/hr .
- Time limit should be 00:01 to 23:59 (hrs:min).

- Volume limit should be 0.1ml to capacity of syringe.
- Unit should be PCA upgradeable.
- Unit should have facility for time locked BOLUS / PCA facility & administration counter and display for the same.
- Unit should have minimum six stage programming of target time and target volume.
- Occlusion should be of three levels low, medium and high.
- KVO (Keep Vain Open) rate should be programmable from 0.1ml/hr to 10 ml/hr.
- Unit should have LED display of flow rate & LCD display for infused volume and elapsed time.
- Unit shout have Display of Drug name on LCD
- Unit should have minimum 25 drug library with choice of personalized library.
- Unit should have automatic rate calculation with volume and time limit.
- Unit should have body weight based rate calculation programming.
- Unit should have stacking facility with normal or optional power cord.
- Battery back up should be 4-5 Hrs @ 5 ml/hr.
- Unit should have audio visual alarms for occlusion, end of syringe, Syringe displaced, No Syringe, Wrong Syringe, Pre alarm for end, Invalid rate, Invalid target volume, Invalid target time.
- Accuracy should be +/ -2% for volume and time.
- UNIT Should be CE/ FDA Certified

51. 30 kW HF X-Ray with automatic film processor

- The High Frequency Mobile X-Ray Unit should be completely integrated capable of all Standard radiographic procedures in Wards, OT, Trauma centre, Emergency and Other rooms & The System should be able to move into a lift and all patient access areas.
- The unit should use Hi-Frequency X-ray Generator Technology of 40 KHz or more
- Required Ratings:
  - HF Generator Minimum 30 KW or Higher
  - 400 mA or better
  - 125 kVp or better
  - 200 mAs or better
- The unit should have easy manual movements and must be easy to maneuver within the Hospital areas: surgical rooms, intensive care, emergency, wards etc.
- Should be a fully integrated light weight mobile unit with a easy to use X-Ray System
- Should have excellent movements and easy to turn

GENERATOR:

- High Frequency generator with microprocessor control
- Tube overload protection with continuous Monitoring X-Ray Tube Heat Units
- Programmed anatomical technique with storage of program
- Safety features for overload, tube current, KV, tube rotation etc and auto test for unit.
- 30 KW or higher X-ray generator with a max of 125 KVp or more that should be able to work on 12 amps current. (230v supply 15 amps power plug available at trauma center)
- mA range 50 to 400 mA or more
- KV range 40 to 125 KV or more.
- Time range from 1.1 ms. to 4 sec or more

CONTROL UNIT:

- Feather touch control panel with LCD display for Data and massage.
- Anatomical technical selection and KV & MAS increase and decrease facility

MOBILE UNIT & TUBE STAND COLUMN:

- The unit should have easy manual movement with break
- Unit should have a multi-leaf collimator
- The tube stand column should have a articulated arm for easy reach to patient
- -15 to +100 “Z” axis frontal tube rotation
- Front telescopic crane type & easy to use tube arm
- Maximum Focal Distance should be higher than 180 cm to the floor and minimum of 60 cm to the floor.
- Should have 180 deg rotation of cross arm from its vertical axis +90 deg and – 90 deg better reach to patient.
- The unit should have a safe and secure cassette housing

X-RAY TUBE - Ratings:

- Maximum KVp: 125 KVp.
- It should be Dual focal spot rotating anode with small focal spot 0.6 mm or better and a large focal spot 1.3 mm or better and Low speed rotor drives 3,000 r.p.m.
- Single Phase 230 VAC 50 / 60 Hz. ±10%.

Others:

- The x-ray unit should meet CE or FDA standards
- The system offered should have AERB Type approval/ NOC for installation and use in India.

AUTOMATIC FILM PROCESSOR FEATURES REQUIRED:

- Automatic X-ray Film Processor table top model for processing all standard size x-ray and imaging films upto 14" x 17" size
- It should have capability to process a minimum film size of 4" x 4" and above
- The processor should have high quality rollers of plastic / rubber as needed and they should be made of long lasting material
- The transport system should be controlled by a micro processor - built in to the system and should be able to provide uniform and smooth transportation
- There should be provision to set up the processor for output times of 90/105/118/135 or 167 secs, depending on the requirement of the user - at the time of installation or during service - based on the customers request
- The processor should have capacity to process atleast 140 films per hour (12" x 10" size) or over 80 films of 14" x 17"
- Developer and Fixer temperatures should be adjustable - in steps by the user
- Drier temperature should be adjustable, if needed &
- The minimum capacity of the developing / fixing and water tanks should be 5ltrs or more
- There should be a reservoir provided where fresh chemicals of 20ltrs can be stored
- There should be a provision for replenishment of fresh chemicals from the reservoirs - automatically, based on the films processed
- The amount of chemicals replenished should be adjustable, depending on users request
- Fresh water for rinsing the films should be circulated into the wash tank. This should be controlled automatically - mention liters per hour
- The processor should be controlled by a micro processor with display of Bath temperature
- Should have provision to put the machine on standby mode automatically when not in use
- The processor should be in a ready state and respond immediately upon insertion of a film - to process. All bath temperatures should be automatically maintained even during standby mode
- The bath dryer should have jets / venturies that ensure uniform drying of films across the entire area. Please provide technical documents and explain how to avoid wet patches / non-uniform drying
- The processor tanks should be made of non-rust material. Special plastic with monocoque shell construction of the tank area would be preferred. Shell : 2 part body shell is must for easy serviceability
- The processor should be designed to provide easy access to the electrical and micro processors for service and settings - without the need to tilt the processor or drain the chemicals - saving time and ensuring no wastage of chemicals
- The processor should have a small foot print - not more than 0.5 sq mtrs
- The manufacturer should be ISO registered
- Mention if product is compliant to any international standards such as CE/FDA,ISO 13485
- The manufacturer should have easy availability of spares - locally in India
- The manufacturer should have fully trained engineers in the field to service the processors and ensure maximum uptime

Dark Room Equipment & accessories as required is given below:

i) X – Ray Cassettes of following sizes:
14” x 17” – 1 No. 14” x 14” – 1 No. 12” x 15” – 1 No.
10” x 12” – 1 No. 08” x 10” – 1 No.

ii) Intensifying Screen with 400 speed of following sizes:
14” x 17” – 1 No. 14” x 14” – 1 No. 12” x 15” – 1 No.
10” x 12” – 1 No. 08” x 10” – 1 No.

iii) X – Ray Films (100 sheets per box) of following sizes:
14” x 17” – 1 No. 14” x 14” – 1 No. 12” x 15” – 1 No.
10” x 12” – 1 No. 08” x 10” – 1 No.

iv) Film Hanger of following sizes:

14” x 17” – 1 No. 14” x 14” – 1 No. 12” x 15” – 1 No.
10” x 12” – 1 No. 08” x 10” – 1 No.

v) Lead Apron – Featherweight apparel assembled with Lead Vinyl – Regular Size – 1 No.
vi) Lead Glove Universal size – 1 Pair.
vii) Safe Light with filter 20.3 x 25.4 cm (8” x 10”) Wall Model – 1 No.
viii) Film Viewer – 1 No.
ix) Stainless Steel Master Tank with 4 Nos. 22.5 Ltr., Inner Tanks Lids for 5 gallon and Master Tank Size 35” x 18” x 22” – 1 No.
x) X – Ray Developer 22.5 – 1 No.
X – ray Fixer 22.5 – 1 No.
xi) Name Printer – 1 No.
xii) Lead Goggle – 1 No.
xiii) Timer – 1 No.
xiv) Dark Room Thermometer – 1 No.
xv) Lead Blocker Size 12 x 15 – 1 No.
xvi) Lead Letter A – Z, 0 – 9, R & L – 1 Set.

52. <u>100 ma X-RAY MACHINE</u>

- X- ray machine : 100 mA X - ray Machine counter balance mobile stand.
- X- ray machine : 100mA -100 KVP full wave multipulse rectified generator with BEL DSA -3/DSA-2 X-Ray tube or AERB approved fine focal spot tube
- Output : 8 Kw or less
- KVP range 45 to 100 KVP in steps of 5 KVP step
- Control: complete with voltmeter ,mA meter .Quick trip, overload circuit breaker, voltage compensator,
- Tube head : Having BEL DSA-3/DSA-2 and high voltage transformer.
- Machine safety device- Electronic sensor to protect X-Ray tube and high voltage transformer from overloading. Quick tripoverload circuit breaker.
- Collimator: Light beam cum shutter diaphragm.
- Power supply requirement: 230V, 50 Hz , single phase,15 Amps.
- Stand : Mobile stand with counter balanced, Articulated tube carriage allowing movements of the tube head in vertical and horizontal plane lead lined cassette strong box.

53. <u>Color doppler</u>

A state of art fully digital, compact portable Colour Doppler Ultrasound machine is required with following technical features

1. The system should be with following Broad Band width transducers:
- **a)** Multi frequency Convex array transducer (Frequency range 3-7 Mhz) for Abdominal,Ob/Gyn applications
- **b)** Multifrequency Linear Array Transducer (frequency range 5 to 12 Mhz) for vascular & small part applications
- **c)** Multi Frequency Endocavitory transducer (frequency range 4 to 9 Mhz) for TV/TR applications

2. System should have digital processing channels 1100 or more
3. System should have grey scale(Min 256 or more)
4. Imaging modes of Real time 2D, Colour Doppler, Power Doppler, Pulsed wave , Tissue Harmonic Imaging, Trapezoidal Imaging, & 3D imaging
5. System must have integrated 3D imaging package.
6. System should have broad bandwidth beam former technology transducers for extreme high resolution 2D image.
7. The system shall process a dynamic range that is at least 170db. The system must display at a maximum depth of2- 30 cm.
8. The system should have high frame rate of 160 frames per second or more
9. The unit should have min.3 active ports with direct switching from console
10. The system should have facility of gain adjustments using slide pot control for excellent images
11. Flat LCD/ TFT monitor of at least 15 inches with flicker free image with tilt & swivel facility
12. It should built in Image Management software
13. The system must have archive capability for storage and retrieval of images and clips with hard disc of 80GB or more
14. System should have direct connectivity to color printer for printing images & reports.

15. It should be European CE/ FDA approved.
16. System should have extensive calculation software packages for General Imaging, Obs, Gynae and abdominal Imaging
17. Inbuilt DVD Drive with the facility to transfer Images.

54. MANUAL DEFIBRILLATOR with AED

The following specifications define a portable, lightweight, battery-operated automated external defibrillator to treat patients requiring basic and optional advanced cardiac life support. The equipment shall be capable of monitoring patient's ECG, deliver defibrillation energy, and document critical ECG medication even.
It should be CE/FDA certified.

Physical Specifications

Weight - Complete unit, excluding batteries, shall preferably be lightweight.
Dimensions - To aid in storage and portability.
Machine should be portable and compact.
Device Construction - The case shall be constructed to withstand the standard operating conditions in a physician's office and/or hospital. The device must also withstand the harsh operating conditions associated with ambulance use.
An optional carrying case with handle and shoulder strap must be available with accessory storage compartments.
Safety - The unit shall be safe to use both for the operator and the patient. The unit must comply with IEC 601-1 for leakage currents.
Service Life - Under normal usage, the unit shall have a service life of not less than five years (excluding routinely replaced items such as a battery, accessories, etc.).
Hard Paddles is to be provided.

ECG Monitor / Display

The unit shall have a high-resolution LCD display for ECG viewing.
The unit shall offer ECG monitoring capability.
The device shall have the capability of displaying an ECG waveform on the Liquid Crystal Display
ECG signal shall be via, disposable defibrillation electrodes
Frequency Response - 0.5 to 40Hz
The unit shall display a heart rate. The heart rate range shall be 20 to 300 BPM
The unit shall display battery performance gauge
The unit shall provide an ECG Sweep Speed of 22.5mm or 25 mm/second.
Defibrillator
The device shall have the option of a pass-code protected manual override to allow for use by Advanced Cardiac Life Support Personnel.
The optional manual mode shall incorporate low energy settings within the range of 5 to 50 Joules.
The defibrillator shall incorporate a load compensation circuit to adjust the Defibrillation waveform, based upon the patient's impedance, to precisely deliver the selected energy.
The defibrillator must be capable of the energy selection up to minimum 150 Joules and above.
The defibrillator shall charge to 150 J in less than 10 seconds, with charged battery inserted in the unit.
The device shall have the option of configurable energy protocol via pass code

Power

Removable battery shall be provided.
The rechargeable battery system shall utilize Nickel Metal Hydride/Sealed lead acid technology.
The non-rechargeable battery system shall utilize Lithium Manganese Dioxide technology.
The unit shall have a battery icon, which will indicate the relative charge state of the battery.
The non-rechargeable lithium battery system shall deliver 50 shocks at minimum 150 Joules/150 minutes of monitoring / 5 years standby performance / 10 years of shelf-life (5 years storage + 5 years of standby).
The rechargeable nickel metal hydride/Sealed lead acid battery system shall deliver 60 shocks at minimum 150 Joules / 150 minutes of monitoring/ 2 years standby performance/ 3 hours of ECG monitoring. Charge time not to exceed 4 hours.

Data Recording/Reporting Options

The device shall have sufficient internal memory to store ECG waveform data of 100-4 second ECG samples or 300 time stamped events
The device shall offer the option of storing ECG and event data to an external nonproprietary PCMCIA data card
The device shall have the option of printing Log Reports to a commercially available printer.
The device shall have the option of transferring ECG and event data to a PC for reviewing and/or report generation

AED Operation

The device shall provide, volume adjustable, audible prompts
The device shall provide text prompts on the unit liquid crystal display
The device shall offer two-button operation:
On/Off, Discharge,
Software configurable buttons

Biphasic Defibrillation Capability

The device shall utilize Biphasic waveform technology as the primary energy delivery option.
The waveform shall be biphasic
The biphasic energy protocol shall be supervisor configurable to adapt to local and / or changing protocols and protected via supervisor pass code access.
The biphasic waveform shall allow for escalating energies up to minimum 150 Joules and above.
The biphasic waveform shall employ a terminating current to depolarize the myocardial cells utilizing a biphasic waveform that shall not vary significantly for patient impendence from 25 Ohms to 100 Ohms.
The waveform shall exhibit the same general characteristics for impedances above and below 85 ohms.

55. BIPAP

Mode :
Spontaneous (S), CPAP
Pressure range (measured at the mask) :
IPAP 4–25 cm H2O (hPa) incriment of 0.2
ePAP 2–25 cm H2O (hPa) incriment of 0.2
cPAP 4–20 cm H2O (hPa)
Respiratory rate : Optional On (10BPM) / OFF
Ti control (S mode)
Ti max range 0.1–4.0 sec
Ti min range 0.1–Ti Max sec
Rise time range Min, 150–900
Trigger and cycle sensitivities 5 levels
Maximum flow capacity at 20 cm H2o 170 L/min
Data display on LCD
It should be CE/FDA certified.
Treatment screen:
Mode and pressure, leak, respiratory rate, Vt, trigger and cycle indicators, SpO2 and heart rate when ResLink and oximeter are connected results screen Usage and efficacy data (leak, Vt, respiratory rate, minute ventilation, spontaneous trigger and cycle %, AHI, pressure)

56. C-ARM IMAGE INTENSIFIER UNIT

The unit should be high quality unit having the below mentioned specifications:

GENERATOR:
It should be digital with feather touch controls.
It should be of high frequency with output of 5 KW or more and frequency of min 40 KHz.
The KV range should be from 40 to 120KV in steps of 1 KV
The fluoroscopic mA should be upto 4 mA or more
The radiographic mAs range should be upto 200mAs or more
Radiographic mA up to 70 mA or more.
Pulsed fluoroscopy should be possible
The x- ray tube should be dual focus rotating anode. The focal spot of the tube should be 0.5mm and 1.5 mm or better and anode heat storage capacity of 200 KHU or more

The digital display of fluoro mA, KV, timer & radiography mAs should be provided and the display should be micro-controller based LCD Display
There should be independent selection of KV & mAs.
The control should have indicator for power on,

I.I.T.V. SYSTEMS & MONITORS:
The image intensifier should be of latest series.
It should be of 9" tripple field (i.e 9"/6"/4") with CCD Camera
The circular grid (108 lines) should be fixed on the I.I to improve the image quality.
2 nos. 17" TFT monitor should be supplied
The monitor trolley should be provided for mounting 2 monitors and should have 2 shelves for keeping memory and stabilizer & isolation transformer.

C-ARM STAND:
It should be ruggedly built and should be of good designed.
It should have steering for controlling back and front wheel movements
It should also have the below mentioned movements
Horizontal travel should be 210mm or more
Orbital movement should be 90+25 degrees
Panning movement should be +/- 12 degrees
Focus to I.I distance should be 900mm or more
Vertical movement should be motorized of 450mm or more
Focus to I.I clearance should be 800mm
C- Arm rotation should be +/- 270 degrees or more

IMAGE MEMORY & ESSENTIAL ACCESSORIES:
Image memory of 100 frames permanent storage or better.
Contrast stretching and negative image facility.
Digital image rotation for orientation.
Full functioning of IR remote control.
7 KVA stabilizer & isolation transformer to be provided
It should run on single phase 230 volts, 15 Amps.
3 nos quality approved lead aprons to be provided
The quoted model should have AERB NOC or AERB Type approval. And International CE/FDA

57. <u>RAPID Sterilizer</u>

State of the Art fully automatic Trauma use autoclave with dry cycle having following features :

- Fully Automatic table top type front loading autoclave of min 22 litres or more Capacity with facility of triple vacuum cycle
- At least 2 or 3 Separators (trays) to hold different type of instruments / Materials with one removable tray.
- Digital display (LED or LCD) of temperature, time and pressure (to show curve & words)
- The pressure and temperature of the autoclave should range form 15 PSI at 121degC to 30 PSI at 134degC
- The body and trays of the autoclave should be made from corrosion resistant stainless steel.
- Provided with Micro bacterial filter.
- For safety the equipment messaging and warning system should be present.
- Fully microprocessor controlled management for constant monitoring of parameters and control of the autoclave functions with 4 cycles as under:-

A. 2 Cycles for unwrapped loads-134degC -4min.
121degC- 20min

B. 2 Cycles for wrapped loads-134degC -4min.
121degC- 30min

- Separate tanks to prevent recycling of water.
- Auto shut off & stand –by mode
- One water filling tank together with one pipe connection.
- Automatic Functioning with automatic self cleaning of pipe steam generator, pipe and other parts after every 100 or 150 cycles of use.
- Thermodynamic initial vacuum.
- Top design reservoir for convenient watering and cleaning.
- Automatic drying system.
- Micro switch to confirm door closure.

- Safety valve & Safety thermostat.
- The system should be easy to use (User friendly).
- The unit should preferably be CE/FDA marked.
- The same unit should have facility to upgrade in future for connectivity to External Thermal printer or Inbuilt thermal printer facility (to keep record of every cycle during use)

58. LAPAROSCOPE WITH CAMERA

Laparoscope Telescope, Fully autoclavable with working length 30 to 33 cm
Wide angled distortion free view and light transmission incorporated
0 deg, 10mm x 1 No
30 deg. 10mm x 1 No
Instrument set
Laparoscopic hand instrument dismentable 5mm size (Reusable) with 33-36cm working length, take apart locking /unlocking mechanism, rotatable with interchangeable handle with cleaning port, mono molar diathermy attachment consisting of:
Veress needle 12 cm length x 2 Nos
Veress needle 15 cm length x 2 Nos
Trocars with pyramidal tip, and cannula with multifunction valve size 11mm x 2 Nos.
Reducer 11 / 5mm x 2 Nos
Trocars with pyramidal tip, cannula with multifunction valve size 6mm x 3 nos, Cannula washer 5mm -50 Nos
Cannula washer 10mm--------25 Nos
Laparoscopic biopsy forceps 5mm x 1 Nos
Maryland Kelley dissector 5mm with unipolar diathermy x 1 nos
Atraumatic grasper, 5mm x 1 Nos.
Atraumatic grasper with fenestrated jaw slightly curves, 1 Nos
Metzenbaum scissor (5 cm) with unipolar x 1 Nos
Laproscopic cautery lead unipolar x 1 Nos
Suction irrigation cannula with two way valve x 1 Nos
L, shaped hook electrode 5mm x 1 Nos
Blunt spatula electrode 5mm x 1 Nos
Laparoscopic bowel grasper 5mm x 1 Nos
Laparoscopic spoon forceps 10 min x 1 Nos
Needle holder with tungsten carbide tip 5mm x 1 Nos
Clip applicator medium large, 10mm , 1 Nos
Claw forceps 10mm- 1 Nos
Biplar forceps with wire teeth, completely detachable – 5mm dia, working length 36cm- 1 Nos
Monopolar high frequency cable, 3 meters- 1 Nos
Bipolar connecting cable to standard electrosurgical unit- 1 Nos.
ENDOSCOPIC CAMERA SYSTEM
Camera head unit consisting with following spec: image sensor: 1x 1/3 " CCD chip
Pixel 752 (h) x 582 (v) pixel per chip
AGC: Microprocessor controlled
Camera control unit with followign specs- maximum resolution of 440,000 pixel, progressive scan CCD sensing chip should optimum image quality for maximizing hi – fidelity image transmission optimizes to any size: the system should have optical zoom to quality of image
size and cross specialty window standardization of the camera system regardless of the telescope used
The system should automatically optimize all settings. The system should be ready to use as soon as it is connected to the camera control unit
HIGH RESOLUTION MEDICAL GRADE COLOUR MONITOR
15" should have composite video, SVHS & RGB output, colour monitor TFT, compatible with above camera system resolution
CO2 Electronic Automatic Insufflators
Electronic automatic insufflators with pin index connection
Should have an adjustable flow rate of 0.5 to 20 litre per minute and a pressure range adjustable 0-30mmHg. Preset and actual value for pressure and flow should be displayed together for better monitoring of both values
Pressure and flow rate should be displayed on the frontal panel. Should be able to select either central suply (4.5 kg/cm2) input pressure from central supply as well as direct connection to high pressure CO2 cylinder. Should have internal heater inbuilt for waming up the cold CO2 gas
Provided with silicon autoclavable tubing 4 sets, with luer attachment. Instrument should work on a universal AC supply between 110-240 V, with a frequency of 50 Hz single phase. Electrical safety certification- IEC-601-1 and CE

acc to MDD Secuvent safety system for constant monitoring of intraabdominal pressure and checking overpressure with automatic back release of CO2 gas within 5 second with acoustic alarm

Should be supplied with 2 nos high pressure hose pin index minimum length 1.0 meter

Xenon light source with 300 watts lamp power required 220 V AC. Manual illumination intensity control life of the lamp should be displayed on the Qty. 01 No

Formalin Chamber

Formalin chamber made of Virgin Acrylic 6mm thickness: Size: 26" x 8"x8" (LxBxH) with three tray, for sterilizing the laparoscope, preferably with three tray x 2 Nos

CO2 cylinder

CO2 cylinder to accept 4.5 kg liquid CO2 capacity bottle with pin index connection x 2 Nos

Disinfection tray

Disinfection SS tray of steel grade 304 with sieve tray to life, size : 27" x 7" x 5" (LxBxD) x 2 Nos

UPS System

UPS- 2.0 KVS off line with one hour backup time (at 1200 watts real load) with inbuilt SMF batteries. Should be able to work on wide input range between 160-270 VAC at frequency between 50 hz – 5 Hz should use PWM technology with power conversion with single transformer arrangement with an output of 2300 VAC protection of overload, short circuit and low battery. Should have indication on front panel for mains load/battery load/battery overload- low and MCB protection in case of short circuit. Should be supplied with separate battery rack, ISI/CE approved good quality Indian makes

Laparoscopy trolley

Mobile unit tower with 4 shelves, 1 drawer, 1 compartment for unit connection cable, 1 cable channel,1 winding bracket, 8 power socket, 1 isolating transformer & power cable 240V, 50 Hz

Camera head holder Device connecting cable, 150 cm long

Device connecting cable, 250 cm long Universal CO2 bottle holder Should have arm for TFT monitor Should have antistatric castor wheels at least two lockable.

All products should be CE/FDA certified.

59. STRETCHERS

Stretches Bay should be following Specification-

Light weight, easy clean.

Anodized aluminum alloy frame work.

Washable, Water Proof & Anti Fungus Fabric Top With Safety Belts.

Pull Along handles at both Ends.

Load Bearing of 150 Kg.

It should be ISI / CE / FDA certified or equivalent.

60. HEMATOLOGY ANALYZER

1. Function: Automatic WBC 3 part, 23 parameters (including WBC, RBC, PLT color histograms)

2. Principle: Electrical impedance method for counting and cyanide-free colorimetric method for hemoglobin

3. Test items: WBC, LYM#,MID#, GRAN#, LYM%, MID%, GRAN%, RBC, HGB, HCT, MCV, MCH, MCHC, RDW-SD, RDW-CV, PLT, MPV, PDW, PCT, P-LCR, and WBC, RBC, PLT histograms

4. Throughput:≥70 samples/hour(＜55 second/test), 24h power on, with dormancy and wake function

5. Sample type: venous blood, peripheral blood, diluted peripheral blood

6. Sample volume: venous blood ≤9.6ul, peripheral blood ≤9.6ul, diluted peripheral blood ≤20ul, allow for secondary testing

7. Work mode: Double counting cell, automated sampling and measuring. Built-in dilution device, automatic join hemolysin to the host, and automated dilute second time.

8. Blockage Removal system: soak, positive & negative washing, real-time monitoring high pressure scorching etc multiple intelligence exhausting, with the Monitoring function for incomplete plugging hole.

9. Alarm: automated system diagnose, self-check function, error warning and prompt functions, including insufficient reagent alarm.

10. Autonomous Maintenance: Instrument with the function of autonomous maintenance, soaking the pipeline to reduce the plugging.

11. Large storage capability: 100000 samples' parameters and three histograms

12. Calibration: Three test modes offer independent automated calibration and manual calibration, special calibration solution provided

13. LCD: Touch screen

14. It should be CE/FDA certified

15. Printer: Built-in thermal printer or optional external printer, various report formats available

Performance index

Repeatability error Linear range

WBC ＜2.0% 0.0-99.9x109/L

RBC ＜1.5% 0.0-99.9x1012/L

HGB ＜1.5% 0-300g/L

MCV ＜0.4% 40-150Fl

HCT ＜1.0% 0.0-100.0%

PLT ＜4.0% 0-99.9x109/L

Cross infection rates: RBC, WBC, HGB＜0.5%,PLT＜1.0%

Work environment: 220(1±10%)V, (50±1)Hz, temperature 10℃-35℃, humidity10%-90%.

61. HEMOGLOBIN ANALYZER

1. Should have a direct read-out on LED display of hemoglobin in g/l or g/dl.
2. Should be ready for immediate use.
3. Should have auto zeroing.
4. Simply inserting the cuvette should activate the meter and initiates reading of a test sample.
5. Should have led type light source for long life.
6. Should have 578 nm wavelength.
7. Should have external memory disk for 400 tests which is supplied with cuvettes.
8. Should work with input 200 to 240Vac 50 Hz supply and 9 volt battery.
9. Should supply 400 cuvettes free with each unit
10. Should be CE/FDA certified or equivalent..

62. PNEUMATIC TORNIQUET

Automatic Tourniquet Device should be used for stopping blood flow on tissue with microprocessor controlled.

- It should have Microprocessor controlled
- It should have Two pressure output port
- It should have Alphanumeric LED display
- It should have Adjustable cuffs
- It should have to 600 mmHg with 5 mmHg accuracy Pressure setting
- It should have +/- 8mmHg Pressure regulation
- It should have Adjustable Time setting (0 to 120 minutes with 1 minute accuracy)
- It should be supplied with mounting trolley.
- It should be CE/FDA certified

63. TABLE TOP CENTRIFUGE

Capacity : 16 tube x 15 ml & 24 tube x 5 ml

Construction: Built in time and speed regulator with suitable speed indication and lid lock system.

RPM : 5500 – 6000 rpm

Digital Display : RPM & TIME

Power supply : 220/240 volts, single phase, 50 cycles plus minus 12 AC.

Line Voltage Corrector: A line voltage corrector of suitable rating should form part of the configuration as per IS:9815/89

Should be CE/FDA/ISI certified or equivalent.

64. RH VIEW BOX

Construction: Built with best quality Finished Sunmica Coated plywood. Upper side is covered with Imported Scratch-proof Acrylic Sheet.

Size : approx. 600mm x 150mm

Light : Two Nos of Tube Light (1.5 ft length)

Control panel : On /Off Switch,

Power supply : 220/240 volts, single phase

It should be ISI / CE/FDA certified or equivalent.

65. BLOOD BAG TRANSPORT BOX

Blood Transport Cooler Box
Support AC110~240V, DC12~24V,7.4V battery
Keep 2-8"C under 32"C
1.5L Capacity, CE,rohs
Blood Transport Cooler Box is Portable for vaccine, biological, blood, specimen or other heat-sensitive medication distribution and turnover on outdoors
Suitable for individual, immunization stations, health centers, CDC, Bureau of Animal Husbandry, etc.
Standard packing: 1pc cooler, 1 car adaptor, 2 charger, 2 batteries, 1 accessories bag
Specification:
Size(L*W*H):240*170*195mm
Volume(L*W*H) 180mm*100mm*80mm Setting temp 2-8°C(under ambient 32'C)
Input /output voltage(adapter) AC100V-240V/DC9.0V
Output current (adapter) 4A
Input/output voltage(battery):AC100V-240V/DC9.0V
Current(Battery):2A
Input/output voltage (car power) DC12V/ DC9.0V
Current (vehicle power) 4A
Voltage (lithium battery) DC7.4V
Capacity (lithium battery) 16000mAH
Power rating DC9.0V/ 18W,DC7.4V/13W
Weight (with battery) : 5.3kg
Battery working time: Per battery working 6~8 hours under 35'C, battery is interchangeable and rechargeable.
It should be ISI/CE/FDA certified or equivalent..

66. NEEDLE BURNER

Input voltage should be 220-250 VAC – 50 Hz
No Load Current should be <50mA.
The current while burning needle should be 0.5A
Needle burning temperature should be ~ 1500°C
Needle burning time should be ~ 3 Sec
Operating humidity should be <85%
Dimension should be (H X W X D) 73 X101 X 263 mm.
Weight should be 1400 gr.
Power consumption while burning needle should be ~100Watt.
It should be ISI/CE/FDA certified or equivalent.

67. SPLINTS AND TRACTION

Medical Traction Splints, A sustained pull applied mechanically especially to the arm, leg, or neck so as to correct fractured or dislocated bones, overcome muscle spasms, or relieve pressure, avoids further hemorrhages, shock and secondary nervous, vascular, bone and muscular damages.
Length adjusted aluminum body durable nylon leg straps automatic traction mechanism.
Set of adult and pediatric sizes to gather with the carry bag.
Traction Splint Set

Stretch Size (L×W×H)	: 136×22×18cm
Normal Size(L×W×H)	: 90×22×18cm
Self-weight	: 2Kg
Load Bearing	:
Quantity	: 2PC
Size (L×W×H)	: 96×26×25cm
G.W	: 10KG
N.W	: 9KG

It should be ISI/CE/FDA certified or equivalent.

PART- II : SPECIFICATIONS OF ASSOCIATED PIPELINING WORK

1. Medical Gases Pipeline System

Oxygen Manifold

Supply, Installation, Testing and Commissioning of Oxygen Manifold Supply System (Cylinder Manifold Unit) 2 x4size.

- It shall fully complies and meets with the requirements of the UK DOH Health Technical Memorandum 02-01 (HTM 02-01). It should be CE/FDA certified.
- 10 Cylinder Manifold bank as left side and 10 Cylinder manifold bank on right side complete with 20 Nos. pig tail pipes and 20 nos. non return valves.
- It should have all regulators which should be adiabatic certified.
- It should have EMC certificate in compliance with section 3.55 in HTM 02-01
- Compliant with C11 model engineering specification
- The oxygen manifold supply system shall consist of an automatic changeover manifold control panel, hereinafter referred to as manifold control panel, complete with cylinder header racks and tailpipes with capacity and sizes as mentioned in schedule of quantities for high pressure gas cylinders.
- An emergency reserve manifold complete with cylinder header racks and tailpipes with capacity and sizes as mentioned in schedule of quantities for high pressure gas cylinders.
- The permanently connected emergency reserve supply shall be brought into operation automatically via a non-return valve and shall be designed, where practicable, to provide the same flow rate as the primary system.
- There shall be sufficient cylinder capacity within the emergency reserve supply to supply the average anticipated demand for a minimum of four hours.

Fully Automatic Control Panel (for Oxygen)

It shall fully complies and meets with the requirements of the UK DOH Health Technical Memorandum 02-01 (HTM 02-01). It should be CE/FDA certified.

The manifold control panel shall be manufactured under an ISO 13485:2003 quality management system. A copy of the certificate of registration shall be provided for review.

- It should have EMC certificate in compliance with section 3.55 in HTM 02-01
- Compliant with C11 model engineering specification
- The manifold control panel shall be designed and certified for use with oxygen at 200 bar and 60°C. Auto-ignition testing shall be carried out and a copy of the test report shall be shall be provided for review.
- The manifold control system shall provide an uninterrupted supply of medical oxygen from equally sized high pressure cylinder banks via a suitable arrangement of pressure regulators, providing a constant downstream nominal pipeline gauge pressure of 400 kPa.
- The manifold control panel shall provide a minimum flow of 1500 l/min to the nominal 400 kPa medical oxygen pipeline system.
- The manifold control panel shall be no wider than 500 mm to ensure optimal use of wall space within the facility.
- Automatic changeover of duty bank shall occur at a cylinder gauge pressure of 14 bar, actuated by bourdon tube pressure gauges with integral alarm contact connected directly to a port within the first stage pressure regulators. Piston or diaphragm type pressure switches are not acceptable.
- Line pressure shall be continuously monitored by an electronic pressure switch; mechanically actuated pressure switches are not acceptable.
- There shall be two separate stages of pressure regulation to enable high peak flow rates without a reduction in line pressure. Multistage regulators combined into a single unit are not acceptable.
- Pressure regulators shall comply with BS EN ISO 10524-2.
- The system shall be duplexed such that component failure will not affect the integrity of the medical gas supply.
- The manifold shall employ be a fail-safe system in the event of power failure so that both bank isolation solenoid valves open and continuity of supply is assured. Upon restoration of the electrical supply, the original running bank shall return on line.
- All pressure regulators shall be protected from over-pressurisation by relief valves that are vented to atmosphere.
- The line pressure relief valve shall be provided with easing gear.
- Two non-return valves, one for each bank, shall be provided within a line pressure manifold block and shall provide gas tight isolation and continuity of service in the event of any upstream component failure.
- The control panel shall be powered by an internal 24 V d.c. power supply.
- There shall be manual changeover button to provide simple selection of duty bank.
- The manifold control panel shall be provided with a lockable isolation valve to enable positive tamperproof isolation for maintenance.
- The automatic control panel shall be supplied fully assembled and tested.

Oxygen Single Cylinders Emergency System.

Supply, Installation, Testing and Commissioning of Oxygen Emergency Reserve Manifold 1x2size

· It shall fully complies and meets with the requirements of the UK DOH Health Technical Memorandum 02-01 (HTM 02-01). It should be CE /FDA certified.

· The emergency reserve manifold shall be manufactured under an ISO 13485:2003 quality management system. A copy of the certificate of registration shall be provided for review.

· The emergency reserve manifold shall be designed and certified for use with oxygen at 200 bar and 60°C. Auto-ignition testing shall be carried out and a copy of the test report shall be shall be provided for review.

· The emergency reserve manifold shall provide an uninterrupted supply of medical oxygen from equally sized high pressure cylinder banks via a suitable arrangement of pressure regulators, providing a constant downstream nominal pipeline gauge pressure of 400 kPa.

- It shall be CE marked with the notified body number specified.
- It shall be provided with a copy of the certificate of origin.
- It should have all regulators which should be adiabatic certified.
- It should have EMC certificate in compliance with section 3.55 in HTM 02-01
- Compliant with C11 model engineering specification

- Each cylinder bank shall be fitted with an isolation valve to enable continuity of supply through temporary manual operation in the vent of primary supply failure.
- The manifold control panel shall provide a minimum flow of 1500 l/min to the nominal 400 kPa medical oxygen pipeline system.
- An emergency reserve alarm of 68 bar falling pressure shall be provided for each cylinder bank, actuated by bourdon tube pressure gauges with integral alarm contact connected upstream of the bank isolation valves. Piston or diaphragm type pressure switches are not acceptable.

· There shall be two separate stages of pressure regulation to enable high peak flow rates without a reduction in line pressure. Multistage regulators combined into a single unit are not acceptable.

· Pressure regulators shall comply with BS EN ISO 10524-2.

· All pressure regulators shall be protected from over-pressurization by relief valves that are vented to atmosphere.

· The line pressure relief valve shall be provided with easing gear.

· A non-return valve shall be provided within a line pressure manifold block and shall provide gas tight isolation in the event of any upstream component failure. The non-return valve shall automatically bring the emergency reserve manifold into service should the primary supply fail. The emergency reserve manifold shall be provided with a lockable isolation valve to enable positive tamperproof isolation for maintenance.

· The emergency reserve manifold shall be supplied fully assembled and tested.

Terminal Units (Gas Outlets) with probes/Adaptors

Supply, Installation, Testing and Commissioning of Medical Gas Terminal Units (Gas Outlet Points)

· It shall fully complies & meets with the requirements of the UK DOH Health Technical Memorandum 02-01 (HTM 02-01)

· It should be CE/ FDA certified.

· Medical gas terminal units shall be manufactured under an ISO 13485:2003 quality management system. A copy of the certificate of registration shall be provided for review.

· Terminal units shall have gas indexing geometry to BS 5682:1998. Other gas specific indexing geometries are not acceptable. It should have antimicrobial coating.

· Gas specific components comprising the terminal unit second fix shall be manufactured from die-cast zinc alloy or similar hard wearing metal. Plastic components are not acceptable. It should be 100% metal.

· Terminal units socket castings shall be permanently coated with a low friction fluoropolymer for maximum reliability and service life. The terminal unit socket die-casting shall incorporate a gas indexing pin to overcome the risk of loosening due to rough handling or abuse. The second fix socket shall incorporate a sheer-plane to safeguard the first fix and pipeline in the event of accidental damage or bed jacking. Gas specific components shall incorporate the gas identity marking permanently stamped or cast into the component surface. The first fix shall be all metal construction, with a brass base block and copper stub pipe. The first fix shall incorporate an integral check valve to enable servicing of the second fix and valve seals without isolation of the gas supply. Probe roller pins shall be manufactured from stainless steel.

· Wall mounted terminal units shall be provided with white ABS mounting box with matching fascia. The mounting box shall have smooth rounded corners to avoid the possibility of injury. A bezel shall be available to cover the plaster edge, provide a neat and easily to clean finish.

Oxygen Flow meter & Humidifier Bottle

Supply, Installation, Testing and Commissioning of Oxygen Flow Meter with Humidifier Bottle

· It should be CE/FDA certified.

· Pressure compensated to prevent back pressure build up on flow indicator.

· Durable polycarbonate flow tube with cover.

· It should be made up of anodized aluminum body and control knob.

· Flow meter should have twin graduated scale which must provides precision control permanent scale graduations.
· Flow meter should be placed in the vertical position.
· It should be light weight of 200g.
· It should have +/-4% gauge accuracy.
· Inlet pressure - 50-60 psi.
· The flow meters should be of 1-15 LPM range for oxygen and with inlet pressure 50-60psi.
· Polysulphone Humidifier bottle should be unbreakable, reusable to disinfectants and complements.

Theatre Vacuum Unit

- It should fully meet and complies as per EC Directive 93/42/EEC Annex II, article 3. full quality assurance system medical devices.
- It should be CE /FDA certified.
- It must consist of the following: - 1no. Suction Regulator and 2nos. 4000ml polysulphone collection jar and both to be mounted on a trolley.
- Suction Regulator: Suction regulator should be supplied with a safety jar, including and antibacterial filter and an anti overflow safety device. Should have wide membrane continuous suction controller
  - Should have vacuum levels: 0-1000mbar/hPa.
  - Should have vacuum gauge fitted with a protective bumper device.
  - Should have on/off knob allowing for the quick restoration of a readjusted vacuum level.
- Must have central adjustment knob with a color coded for 0-1000 mbar/hPa. Should have polycarbonate 150cc safety jar, autoclavable at 121º C, unbreakable, fitted with an anti overflow safety device and equipped with a plastic antibacterial filter.
- Suction regulator must have a unique serial number stamped on the body of each suction regulator , thereby allowing for identification and trace ability.
- Polysulphone collection Jar of 4litres with lid: it should be unbreakable and autoclavable upto 134º C must be fitted with an extremely simple anti overflow safety device, thereby ensuring easy maintenance.
  - Should be totally transparent, they ensure perfect sucked liquid visibility.

Ward Vacuum Unit

- It should fully meet and complies as per EC Directive 93/42/EEC Annex II, article 3. Full quality assurance system medical devices.
- It should be CE/FDAI certified.
- It must consist of the following: - 1no. Suction Regulator and 1no. 2000 ml polysulphone collection jar
- Suction Regulator: Suction regulator should be supplied with a safety jar, including and antibacterial filter and an anti overflow safety device. Should have wide membrane continuous suction controller
  - Should have vacuum levels: 0-1000mbar/hPa.
  - Should have vacuum gauge fitted with a protective bumper device.
  - Should have on/off knob allowing for the quick restoration of a readjusted vacuum level.
- Must have central adjustment knob with a color coded for 0-1000 mbar/hPa. Should have polycarbonate 150cc safety jar, autoclavable at 121º C, unbreakable, fitted with an anti overflow safety device and equipped with a plastic antibacterial filter.
- Suction regulator must have a unique serial number stamped on the body of each suction regulator, thereby allowing for identification and trace ability.
- Polysulphone collection jar of 2 liters with lid: it should be unbreakable and autoclavable upto 134º C must be fitted with an extremely simple anti overflow safety device, thereby ensuring easy maintenance.
  Should be totally transparent, they ensure perfect sucked liquid.

Valve box

Lockable Line Valve Assemblies

- To comply and fully meets with the latest standard HTM02-01 and C11.
- It should be CE/FDA certified.
- Lockable line valves and should comprise full-bore ball valve complete with copper stub pipes for ease of installation.
- Valve - connected to the copper stub pipes by means of flat faced unions fitted with nitrile O-ring seals, allowing removal of the valve without the need to distort the pipe work.
- Stub pipes for valve up to 54 mm will be connected to the valve body using screwed connectors, while valve above this size will use flanged connectors.
- Valve - Brass body, end cap and stem, with a full – bore chrome plated brass ball.
- Valve - Operate from fully closed to fully open with a quarter turn of the handle.

- All line values - Supplied with a mechanism to enable the unit to be locked in the fully closed or fully open position.
- Supplied with copper stub pipes for ease of installation using inert gas jointing procedures.
- O-Ring Seals on the valve stub allow gas tight capping at a spur for further expression.
- Available with gas specific NIST connectors including check valves one or both stub pipes.

Area Valve Unit Module

- Area Valve Service unit Modules shall fully comply with the requirements of the UK DoH Health Technical Memorandum 02-01 (HTM 02-01).
- It should be CE/FDA certified.
- Area Valve Service unit Modules shall be manufactured under an ISO 13485:2003 quality management system. A copy of the certificate of registration shall be provided for review.
- Area Valve Service unit Modules shall be supplied pre-wired and tested complete with pressure switches and medical gas area alarms.
- The chassis and cover shall be manufactured from powder coated 16 swg steel.
- Each area valve service unit shall be fitted with an emergency access mechanism on each door.
- The area valve service unit modules shall be configured for one to five gases services depending on the hospital area served, with the option of an inbuilt medical gas area alarm panel.
- Incorporate a valve with NIST connection at either side of the AVSU valve.
- AVSU ball valves shall be manufactured from die-cast nickel plated brass alloy with flanged connections.
- AVSU ball valves shall benefit from low torque operation and shall be serviceable from the front by a removable cap providing access to the valve stem, chrome plated brass ball and a single piece molded nit rile seal.
- Through spades shall be provided either side of the valve and each valve shall be provided with a blanking spade for deployment during installation or modification of the system without interruption of the main supply.
- The NIST connectors forming part of the stub pipes shall incorporate a check valve with metal seat thus avoiding the possibility of degradation over time.

Medical Gas Alarm (Main & Area)

- To comply and fully meets with the latest standard HTM02-01 and C11.
- It should be CE/FDA certified.
- Master Alarm Panel (MAP) shall monitor the central gases, vacuum and compressed air and work or indicate abnormal conditions as per specified herein.
- MAP - Located in the gas manifold room in the basement of the APC Building.
- Designed to monitor piped gas pressure (high and low pressure on up to six services) Via Pressure Switches in Theatres, Intensive Care Units, Recoveries, Private Rooms, and Wards etc.
- To act as a slave to another alarm within 250 meters, using a three core screened cable (four cores if signals are to be returned to the master unit).
- Local Area Alarms should provide indication of the condition of gas (Normal, High or Low Pressure) at the point of use, by monitoring the internal pressure of the pipeline.
- The Method of Monitoring - Individual pressure switches for high pressure Low Pressure and Low Vacuum and each switch should be fitted with an end of line monitoring resistance
- Matched to the alarm panel
- Enable the alarm panel to detect any faults on the system wiring or signal transmission.
- Alarm Panel - Display up to six services each with normal & two fault conditions.
- Alarm Panel - Battery Back Up will be provided within the system to enable the alarm panel to function normally in the event of mains power failure
- The internal battery must be used to keep alarm panels operational in the event of mains power failure.
- Designed to monitor high and low pressure from local pressure switches.
- Surface or flush format.

Vacuum System

Supply,installation,Testing and Commissioning of Medical Vacuum Plant

The Medical vacuum plant shall fully comply with the requirements of the UK DoH Health Technical Memorandum 02-01 (HTM02-01).It shall be CE marked with CE No. from a notified body & certificate of Origin must be provided.

The medical vacuum plant shall be manufactured under an ISO13485:2003 quality management system. A copy of certificate of registration shall be provided for review.

2x5.5KW each rotary vane vacuum pump vessel mounted.

2x1500 litres capacity horizontal/vertical vacuum receiver tanks.

54mm OD pipe work.

It should have digital display.

- It should have all regulators which should be adiabatic certified.
- It should have EMC certificate in compliance with section 3.55 in HTM 02-01
- Compliant with C11model engineering specification

- Vacuum pump inlets shall include a wire mesh filter and integral non-return valve to prevent oil suck back and pressure increases in the vacuum system. Each vacuum pump shall be fitted with anti-vibration pads between the pump foot & mounting frame.Plant shall be fitted with four equally sized bacteria filters arranged in sets of two.
- Each individual filter shall have the capacity of deliver half the design flow such that one set is designated duty and the other standby.
- Bacteria filters shall have efficiency at least 99.999% when tested by the sodium flame method in accordance with BS 3928:1969 utilising particles in the 0.02 to 2micron size range.
- Bacteria filters shall be marked with the legend 'Bio- Hazard'.
- The pressure drop across each clean filter at 50% of the system design flow should not exceed 25mmHg(3kPa) at a vacuum of 475mmHg(63kPa).
- Each bacteria filter shall be provided with a transport sterliseable collection jar to collect condensate.
- The total water capacity of the pressure vessels shall be at least 100% of the design flow rate of the plant in 1minute in terms of free air aspired.
- The plant control and power management system shall monitor the safe operation of the plant, providing signalling into the alarm system as per the requirements of HTM02-01.Vacuum pump exhaust shall be piped out of the plant room & discharged outside the building at high level away from windows and any other air intakes.

Copper Piping

Supply, Installation, Testing and Commissioning of Medical Grade Copper Tube and Fittings

- The piped distribution system shall use copper pipes manufactured from phosphorous de-oxidised non-arsenical copper to BS EN 1412:1996 grade CW024A (Cu-DHP), manufactured to metric outside diameters and having mechanical properties in accordance with BS EN 13348:2008 in either R250 (half hard) or R290 (hard).
- Copper pipes shall be carry the officially licensed BSI kite mark / CE / FDA / Equivalent Mark and certification shall be provided for review.
- Degreasing of pipe shall be such that there is less than 20mg/m2 (0.002mg/cm2) of hydrocarbons on the degreased surface when tested by the method specified BS EN 13348:2008.
- Copper fittings shall be end feed type, manufactured from the same grade of copper as the pipes and be in accordance with the requirements of BS EN 1254-1:1998 Part 1. Fittings shall be degreased suitable for oxygen use and be supplied individually sealed in protective polythene bags.

It should be CE / FDA Certified

Horizontal Bed Head Panel

- Must fully comply with HTM2022, HTM 2025, HTM02-01 and C11 standards.
- It should be CE /FDA certified.
- It should be wall mounted, exposed to wall and should supply all necessary requirements to the patients.
- It should have extruded aluminum profiles made in one piece, double track wall mounted approx four feet length. Light metal front panels duly powder coated color.
- The bed head panel should be set up with different individual profiles for variable system solutions to realize double track variants as horizontal, wall-mounted supply system.
- The duct should be sufficient for mounting of electrical, adapt sockets and for gas terminal units.
- It also have medical rail 25 x 10 mm below the lower duct to which accessories like I V. pole Infusion pump/ Syringe pump can be attached. For maintenance purposes, lighting components of the bed units must be exchangeable without interrupting the supply of adjacent bed units.
- Each Bed Head Panel should be Pre Piped and Pre-fitted with 6nos. Gas Outlets Oxygen 2, Air 4 Bar 2 and Vacuum 2 - HTM02-01, C11.
- Each Bed Head Panel should also be Pre-fitted and Pre – wired

  8nos. Multipin electrical switch and sockets 6/16amp,
  - 1no. RJ45 data socket,
  - 1no.Nurse call switch also be incorporated in panel.

Bed head Panel must also have tubular T5 Fluorescent lamps with electronic control gear for reading/ examination lighting. Segregation of services i.e. Low voltage supplies, High Voltage supply and Medical gases shall be maintained through out.

N2O Cylinder Emergency System.

- The emergency reserve manifold shall fully comply with the requirements of the UK DoH Health Technical Memorandum 02-01 (HTM 02-01).
- It should be CE /FDA certified.
- The nitrous oxide manifold supply system shall consist of:
  - An automatic changeover manifold control panel, hereinafter referred to as manifold control panel, complete with cylinder header racks and tailpipes with capacity for high pressure gas cylinders.
  - An emergency reserve manifold complete with cylinder header racks and tailpipes with capacity for high pressure gas cylinders.
- The permanently connected emergency reserve supply shall be brought into operation automatically via a non-return valve and shall be designed, where practicable, to provide the same flow rate as the primary system.
- There shall be sufficient cylinder capacity within the emergency reserve supply to supply the average anticipated demand for a minimum of four hours.

Single Arm Moveable Pendant for Operation Theatre

- To comply and fully meets with the latest standard HTM02-01/NFPA 99C UL listed or any other international standard which meets the specification.
- It should be CE/FDA certified.
- Pendant should provide a convenient overhead supply of electrical services and medical gases.
- Vacuum and electrical services thus eliminating the majority of trailing hoses and cables.
- It should also provide all the features of the Rigid Pendant with the additional facility of being 'height adjustable' by theatre staff using the hand held control.
- Should have universal first fix – accepts retractable second fix pendants.
- The pendant which should be adjustable in length must have upper and lower casings of powder coated steel with a stainless steel fascia plate.
- Should have standard telescopic adjustment 300 mm adjustments.
- Each pendant should have 4nos. 6/16amp multipin electrical sockets.

Each pendant should have provision only for maximum 6-8nos. gas outlets points

2. Laminar Air Flow System for operating room

- Plan air ceiling construction out of 2mm thick extruded aluminum sheet provided with HEPPA filters
- HEPPA FILTERS:-Having dust spot efficiency of 99.97%, 0.3 micron .Air and light diffuser made out of 2 layers of MONO FILAMENT PRECISION WOVEN POLYESTER Fabric for the Plan-air ceiling to give a laminar flow of filtered air. It also provides a diffused shadow less lighting systems with a control on the intensity of luminous by using high frequency electronics fluorescent tubes and ballast.
- The vendor has to do the AHU, Ducting & False Ceiling.
- It should be CE / FDA certified or equivalent.

	APPROVED MAKES	
S. N.	**Items**	**Makes**
1	Ventilator	Maquet / Drager / Air Liquid / Event / Tyco / Techma S.A / Oricare / Flight / Hamilton / Heinen Lowenstein / Phillips
2	ICU Beds with siderack cum Over Bed Table	Merivaara / Volker / Hill Rom / Paramount / Huntlegh / Stryker / Givas / Muka
3	Recovery Trolley stretcher	Merivaara / Hill Rom / Tarsus / Paramount / Huntlegh / Stryker / Givas
4	Crash Cart & Instrument Trolley	Tiano / Hanlim / Metro / Weinmann
5	Blood Gas Analyzer (Level - II & III)	IL / Opti / Radio Meter / Roche / Nova / Siemens / Eschweiler / Abott / Alere / Erma
6	Bio Chemistry Analyzer	IL / Mindray / Dirui / Bauckman Culter / RFCL / Advia / Roche / Piramal / Adif
7	OT Table	Trident / Medifa / Brumaba / Berchtold / Trumpf / Steris / Dr. Mach / Maquet / Tekkuchi
8	OT Light	Martin / Trilex / Berchtold / Trumpf / Trident / Mediland / Maquet / Stryker
9	Suction Machine	Narang / Supreme / Anand / United

10	Anesthesia Work Station	Penlon / Infinium / Spece Lab /Allied / Medion / Dragger / Datex / Phillips
11	Emergency kit	VBM GmbH/ Uzumcu / Medivent / Sisco / Kay & Company / Sahnisons / Med Freshe
12	Surgical Instruments Kit	Wolf / Carl Storz / Sahnisons / Sisco / Kay & Company / VBM GmbH / Yorco / Med Freshe
13	Cautery Machine	Valley Lab / Erbe / Zeiss / Eshman / L&T Medical / Medion / Zerone
14	Transport ventilator	Drager / air liquid/ progetti medical/Tyco/ Takoka/ Flight / Hamilton / Phillips
15	Medical Gases Pipeline system Oxygen Manifold Oxygen single Cylinders Emergency System Terminal Units (Gas Outlets) with probes/Adaptors Oxygen Flow meter & Humidifier Bottle Ward Vacuum Unit Suction Jas Will Have the following Valve box Medical Gas Alarm (Main & Area) Vacuum System Copper Piping Horizontal Bed head Panel N2O cylinder emergency system Single Arm Moveable Pendant for Operation Theatre	Penlon / Allied / Beacon Medaes / Ohio / Delta / Dragger / WTK / Nine / Pahsch
16	Articles	Different Indian Makes
	14) E.C.G Machine	BPL / Universal / Hygeia / Medion / RMS / Phillips
	17) Telescopic Intra Venous Infusion stand	MDD / Fasttrack / Windowtech / Hitech / Medion / Kay & Company
	18) CUBICAL Curtain	MDD / Fasttrack / Windowtech / Hitech / Medion / Kay & Company
	32) BP Instrument Mercury	Diamond / Morepen / Narang
	33) BP Instrument Digital	Morepen / Infi / Omron
	34) White Background X - Ray Viewer 2 X-Ray Pane	Mex India / Medical Engineers / MDD / Unique
17	Scrub Station for OT	PES / SHD / MDD / Narang / Hitech/ CMS / Steri / ME / Medikraft
18	Blood bank refrigerator	Grabner / Authantic / GB / Remi / Labtop / Narang / Surya / Yorco / Medikraft
19	Operating head light	Heine / Visualux / Welch Allyn/ Berchtold / Stryker / Karl Storz / Luxtel
20	Laminar Air Flow System	Thermo Dyne / Ultra Clean / Surya / Narang / Yorco / CRP / Medikraft
21	Operating Microscope	Vision Care / Labomed / Medimech / Optofine / Lica / Olympus / Carl Zesis / Tagagi
22	Monitor 3 parameter	Philips / Infinium / L&T Medical / Welch Allyn / Medion / Sure View
23	Monitor 7 parameter	Philips / Infinium / L&T Medical / Welch Allyn / Medion / Sure View

24	Central STN with cabling	Philips / Infinium / L&T Medical / Welch Allyn / Medion / Sure View
25	Syringe infusion pump	B braun / Hygeia / Top / Smith Medical / Simtop
26	30 kW HF X-Ray with automatic film processor	Philips / Trivitron / Allengers / Shimadzu / Italray /Siemens / GME / Vision Meditech / Medex
27	100 ma X-ray machine	BPL / GME / Allengers / Adonis / Samon / Siemens / Shimadzu / Vision Meditech / Medex
28	Color Doppler	Philips / Samsung Medison / Aloka / Esaote/ Wipro GE / Sonoscape / Siemens / Sonosite
29	Defibrillator	Philips / Schillar / Cu Medical / Primedic / Zoll
30	Bipap	Philips / Resmed / Re-Smart / DGC / Sinopharm/ Kare medical
31	C-arm image intensifier	Philips / Trivitron / Allengers / Comed / Technix / Shimadzu / Vision Meditech
32	Rapid sterilizer	Laoken / Sakura / Gettinz / J & J / Acmas / Celitron
33	LAPAROSCOPE with camera	Olympus / Wolf / Carl Storz / Reema / Pentax / Aesculab / Stryker
34	Stretchers	Meber / Attucho / Janak / Hill Rom / Paramount / United / Hitech / Yorco
35	Hematology Analyzer	Logotech / Mindray / GB / SFRI / RFCL / Piramal
36	Hemoglobin Analyzer	Authentic/ GB / Sinduri Biotech / Quest / Morpen / Piramal
37	Pneumatic Torniquet	Uzumcu / VBM / York
38	Table Top Centrifuge	Authentic / GB / Insignia / Remi / Labtop / Yorco
39	Rh View Box	Authentic / GB / Insignia / Remi / Labtop / Yorco
40	Blood Bag Transport Box	Authentic / GB / Insignia / Remi / Labtop / York

Annexure

Summary Sheet of Equipments (To be filled compulsory by the Bidder)

Name of the Bidder:

Sl. No	Name of the Equipment	Make of the Equipment	Model of the Equipment	Equipment Certification / Standard (ISI/CE/FDA etc)	Tendered Technical Specifications Parameter wise	Bidder's Compliance (Yes / No)	Bidder's offered technical specifications along with marking location in the catalogue	Deviations from the Tendered Technical Specifications
1					1		1	
					2		2	
					3		3	
2					1		1	
					2		2	

					3		3	
3					1		1	
					2		2	
					3		3	

All other terms and conditions of the tender no. TCIL/15/1482/I/12-MM/44E dated 13-02-2013 shall remain unchanged.

Group General Manager (MM)
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